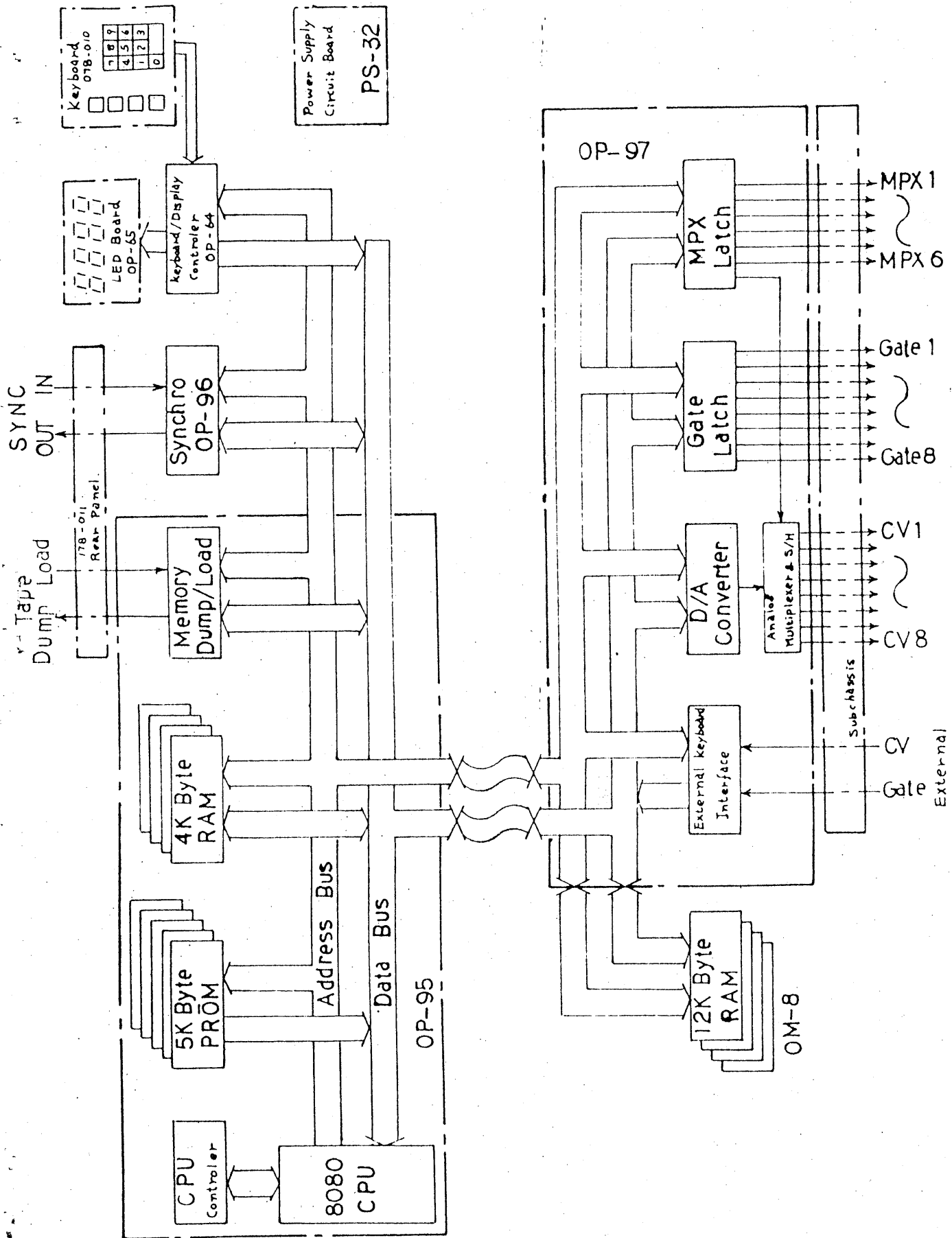


MC-8

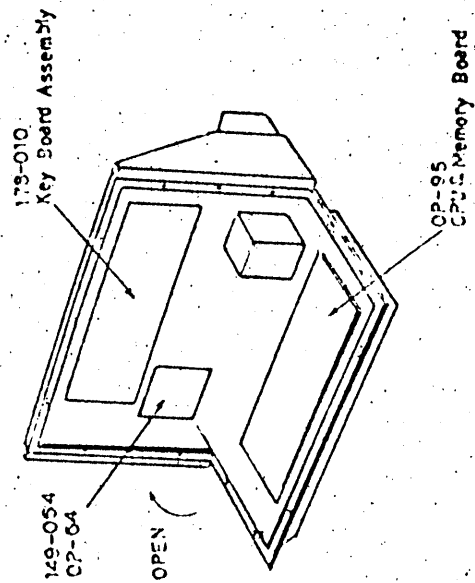
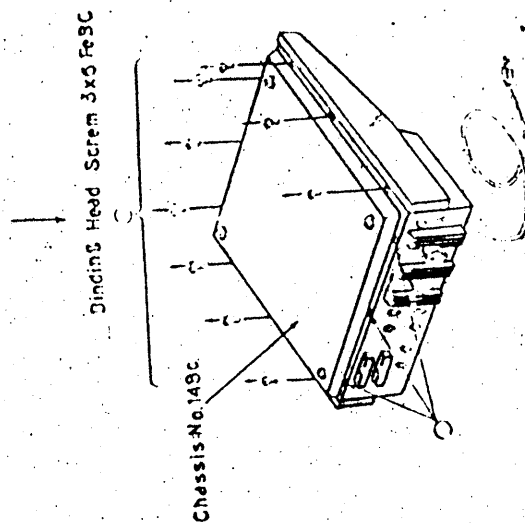
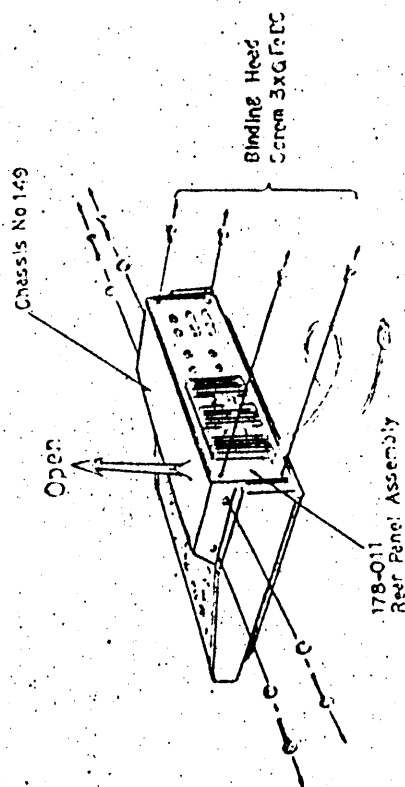
service note

 **Roland**

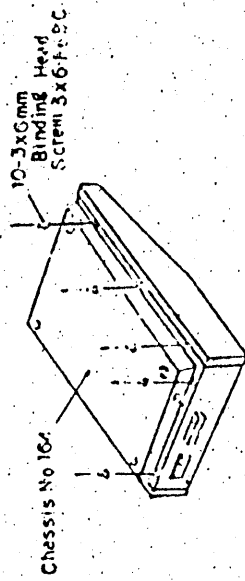


MC-8 Block Diagram

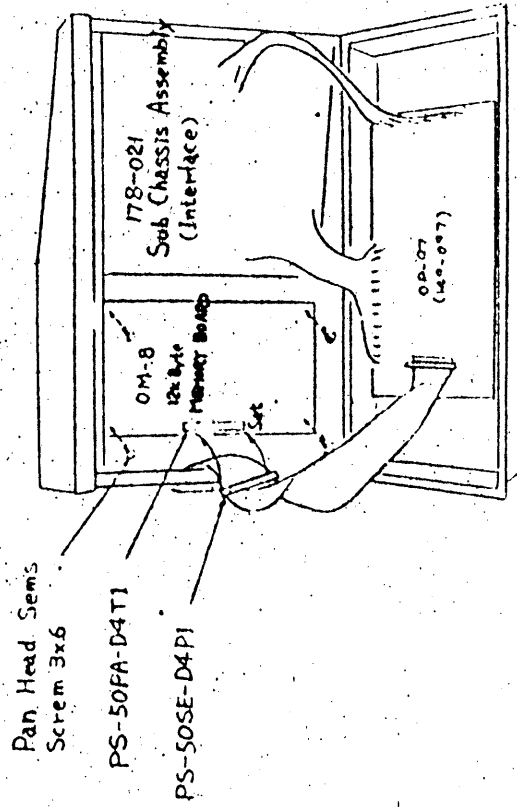
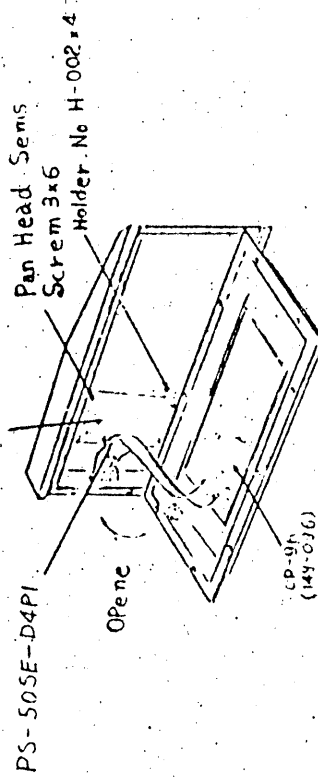
MC-8 Main Disassembly



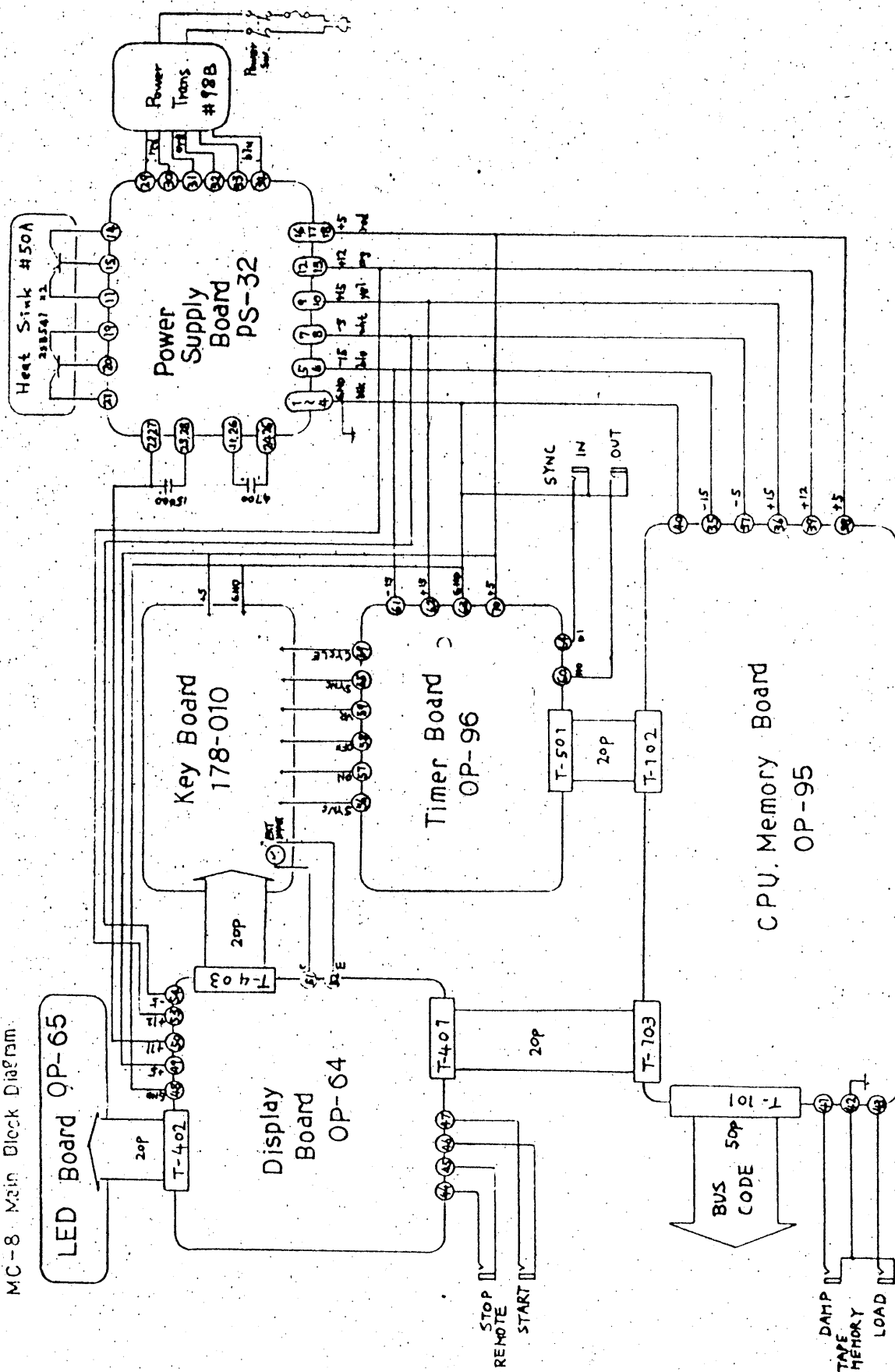
MC-8 Interface Disassembly



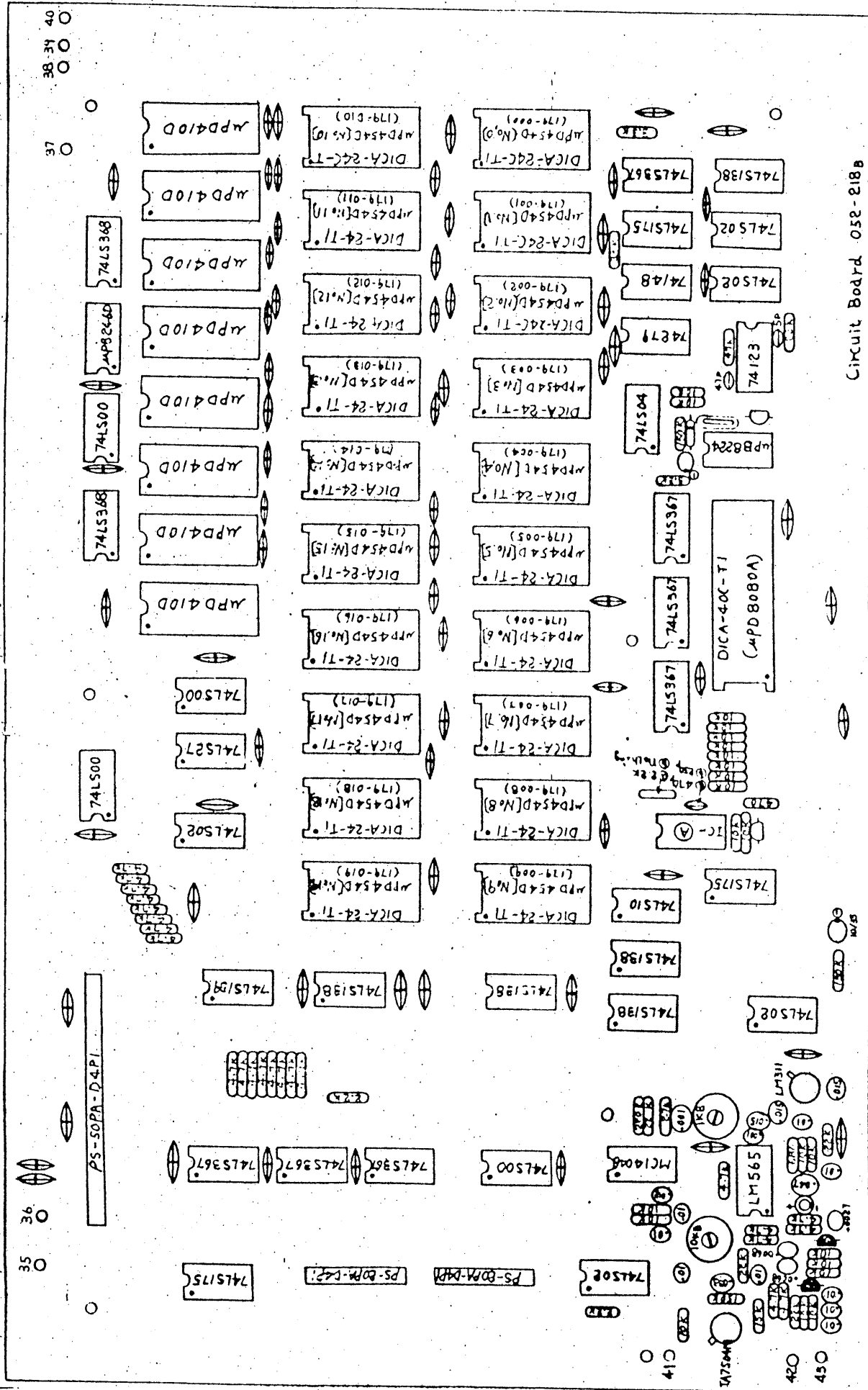
OM-8 (12K byte Memory Board)



MC-8 Main Block Diagram

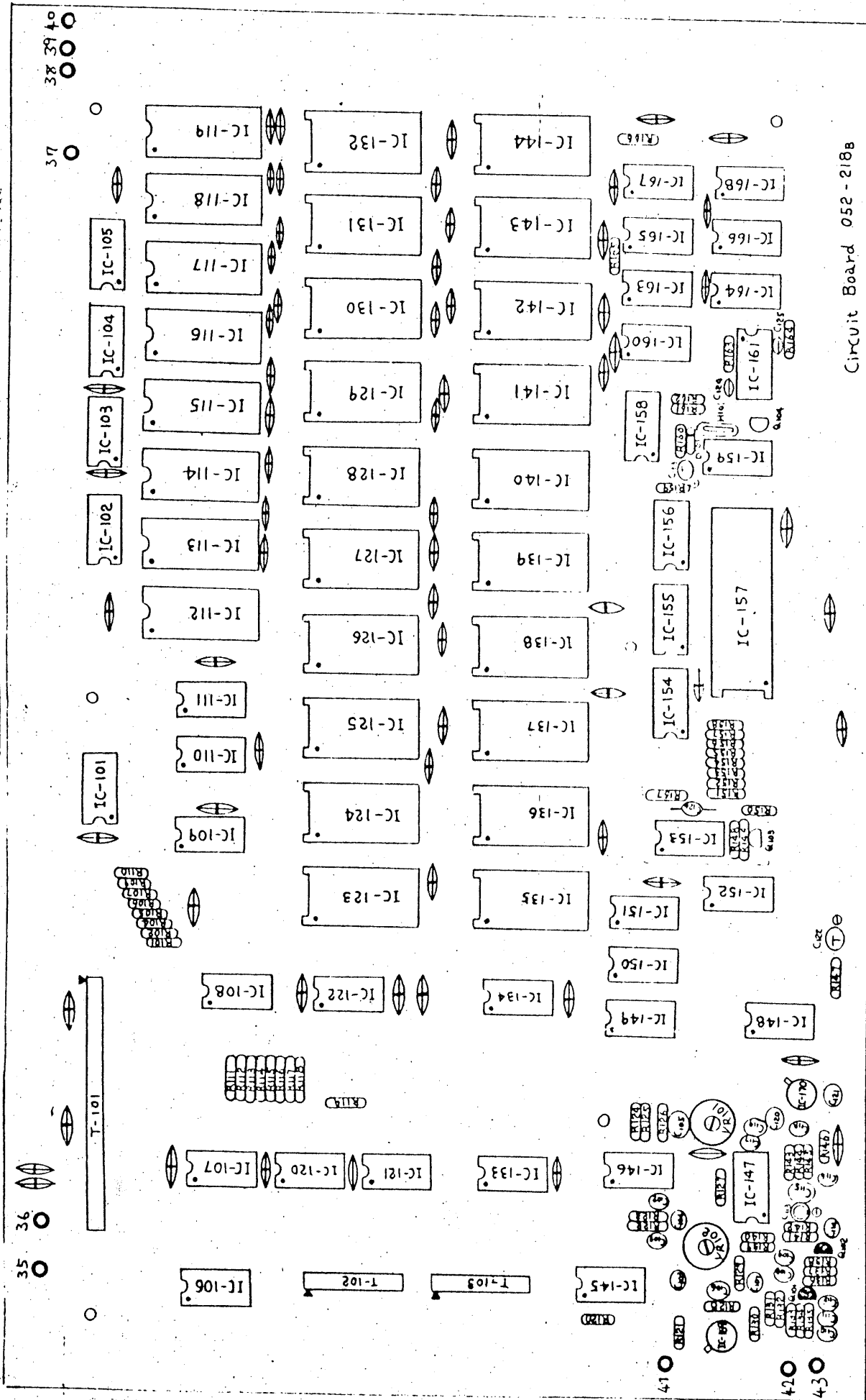


Circuit Board Assembly 0795B (149-095B)



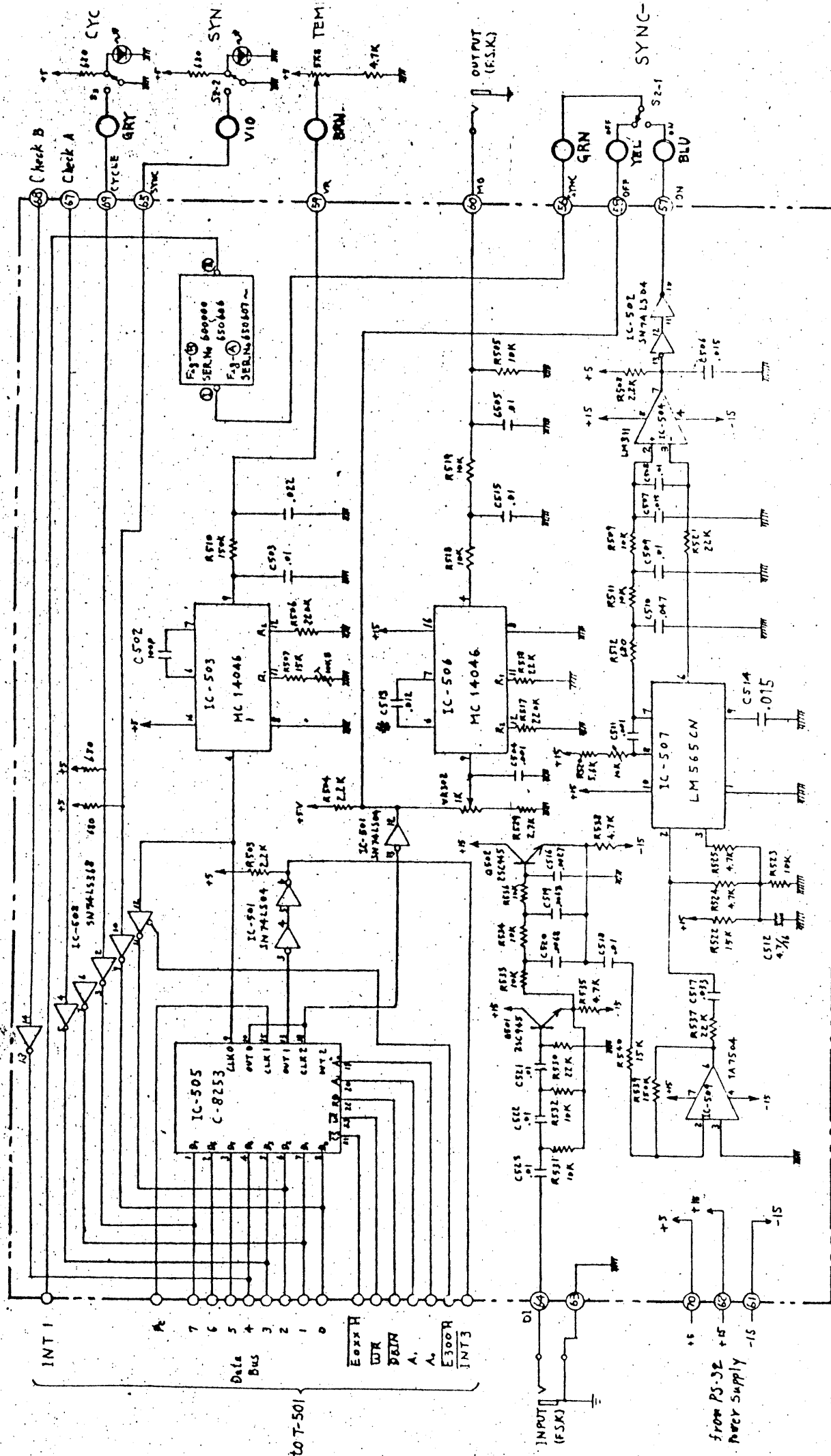
- Resistor, R-25J ($\pm 5\%$)
- Capacitor, Mylar ($\pm 10\%$)
- Capacitor Tantalum ($\pm 10\%$)
- Capacitor Electrolytic
- Capacitor Ceramic
- Capacitor Ceramic (0.1 μ F/50V)
- Transistor 2SC1083-R
- Diode 15E73
- Crystal Frequency HC-18 (18 MHz)
- Transistor 2SC945D
- IC-1
- IC-2
- IC-3
- IC-4
- IC-5
- IC-6
- IC-7
- IC-8
- IC-9
- IC-10
- IC-11
- IC-12
- IC-13
- IC-14
- IC-15
- IC-16
- IC-17
- IC-18
- IC-19
- IC-20
- IC-21
- IC-22
- IC-23
- IC-24
- IC-25
- IC-26
- IC-27
- IC-28
- IC-29
- IC-30
- IC-31
- IC-32
- IC-33
- IC-34
- IC-35
- IC-36
- IC-37
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- IC-67
- IC-68
- IC-69
- IC-70
- IC-71
- IC-72
- IC-73
- IC-74
- IC-75
- IC-76
- IC-77
- IC-78
- IC-79
- IC-80
- IC-81
- IC-82
- IC-83
- IC-84
- IC-85
- IC-86
- IC-87
- IC-88
- IC-89
- IC-90
- IC-91
- IC-92
- IC-93
- IC-94
- IC-95
- IC-96
- IC-97
- IC-98
- IC-99
- IC-100

Circuit Board Assembly C-95B (149-095B)

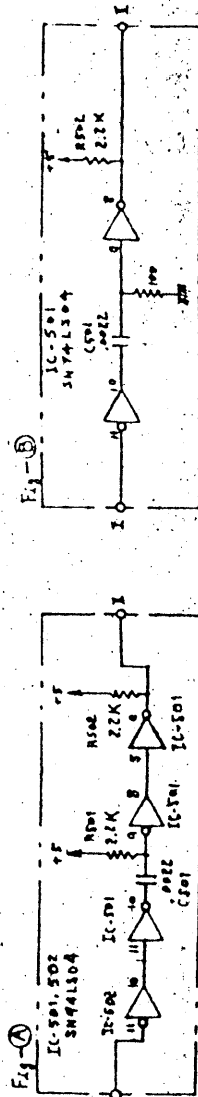


- Resistor R-25J ($\pm 5\%$)
- Capacitor Mylar ($\pm 10\%$)
- ⊕ Capacitor Tantalum ($\pm 10\%$)
- ⊖ Capacitor Electrolytic
- ⊗ Capacitor Ceramic
- ⊙ Capacitor Ceramic (0.1μ/25V)
- ⊖ B Transistor 2SC945Q
- ⊖ B Transistor 2SC1923-R
- ⊖ Diode 1S273
- ⊖ Crystal Frequency HC-18 (18MHz)

OP-96 Timer Board Circuit Diagram

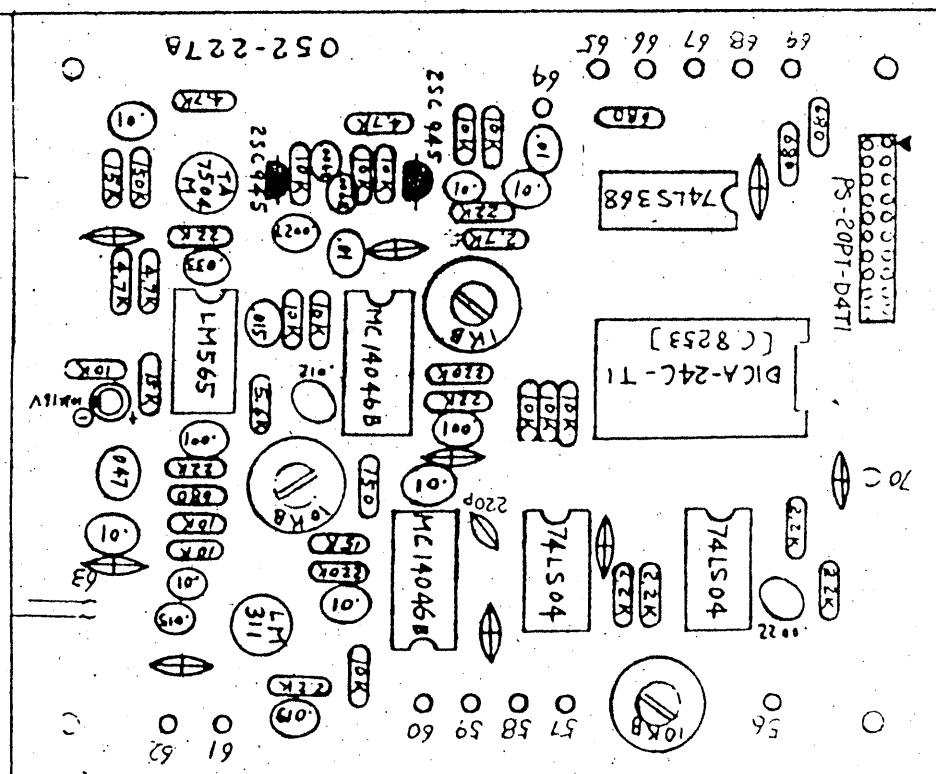
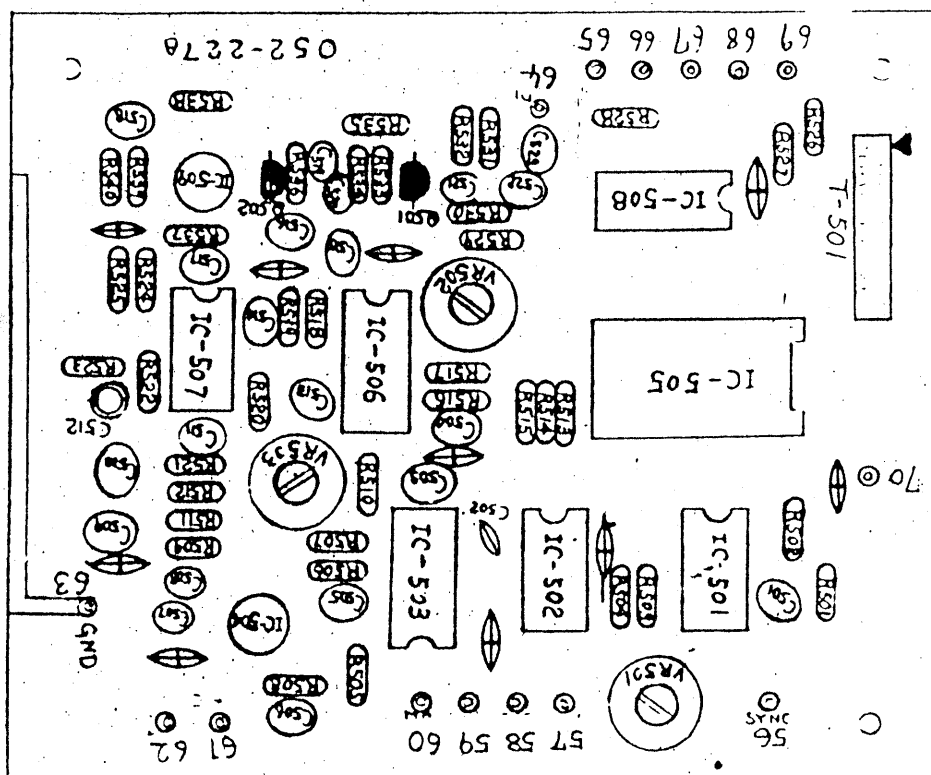







* Capacitance is Calibrated



Note
0.1 µfd capacitors between certain IC power supply input pins and ground are not shown in this diagram.

OP-96 Circuit Board Assembly

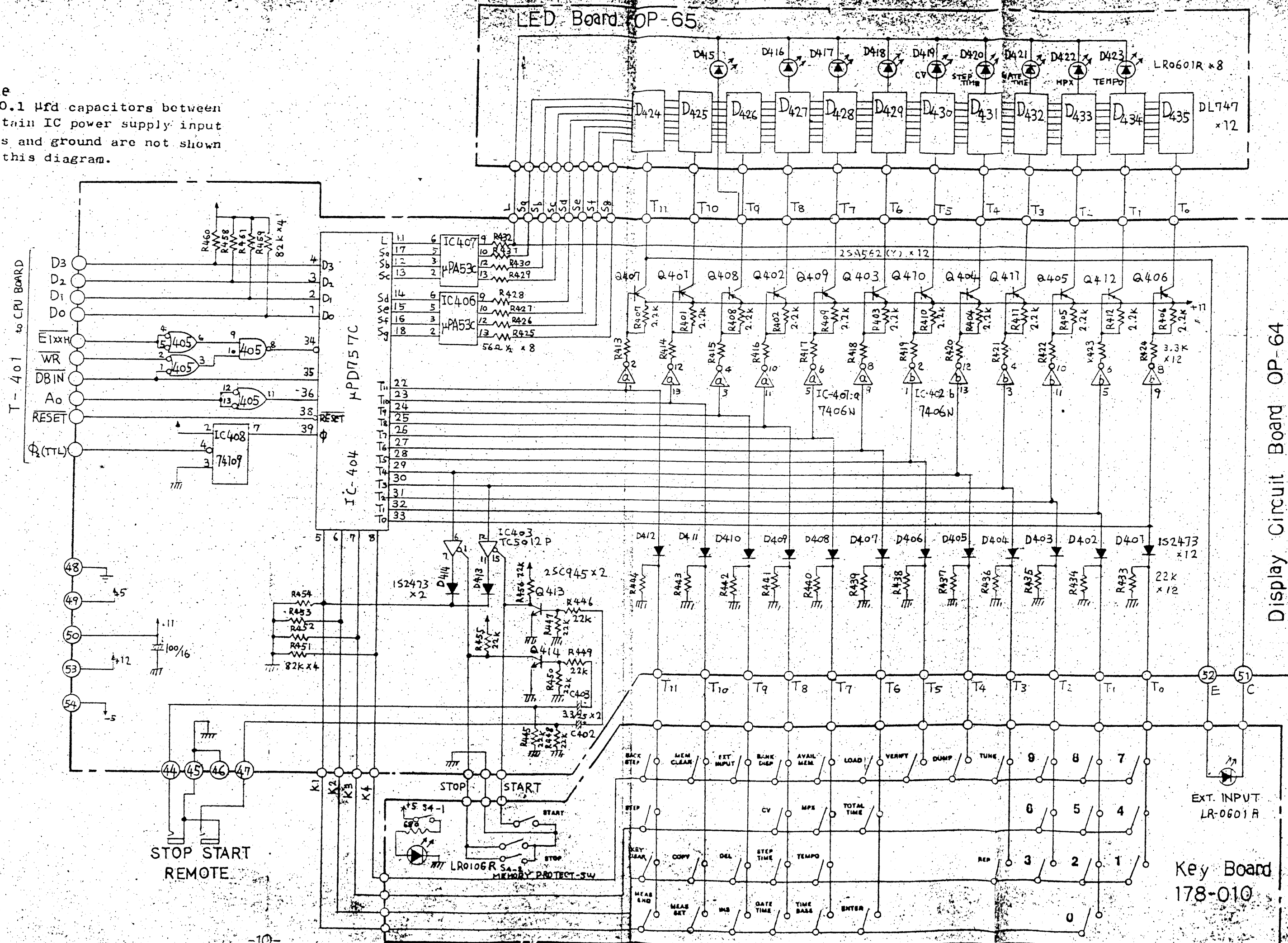


-  Resistor R-25J ($\pm 5\%$)
-  Capacitor, mylar ($\pm 10\%$)
-  Capacitor, electrolytic
-  Capacitor, ceramic
-  Capacitor, ceramic (0.1/25v)

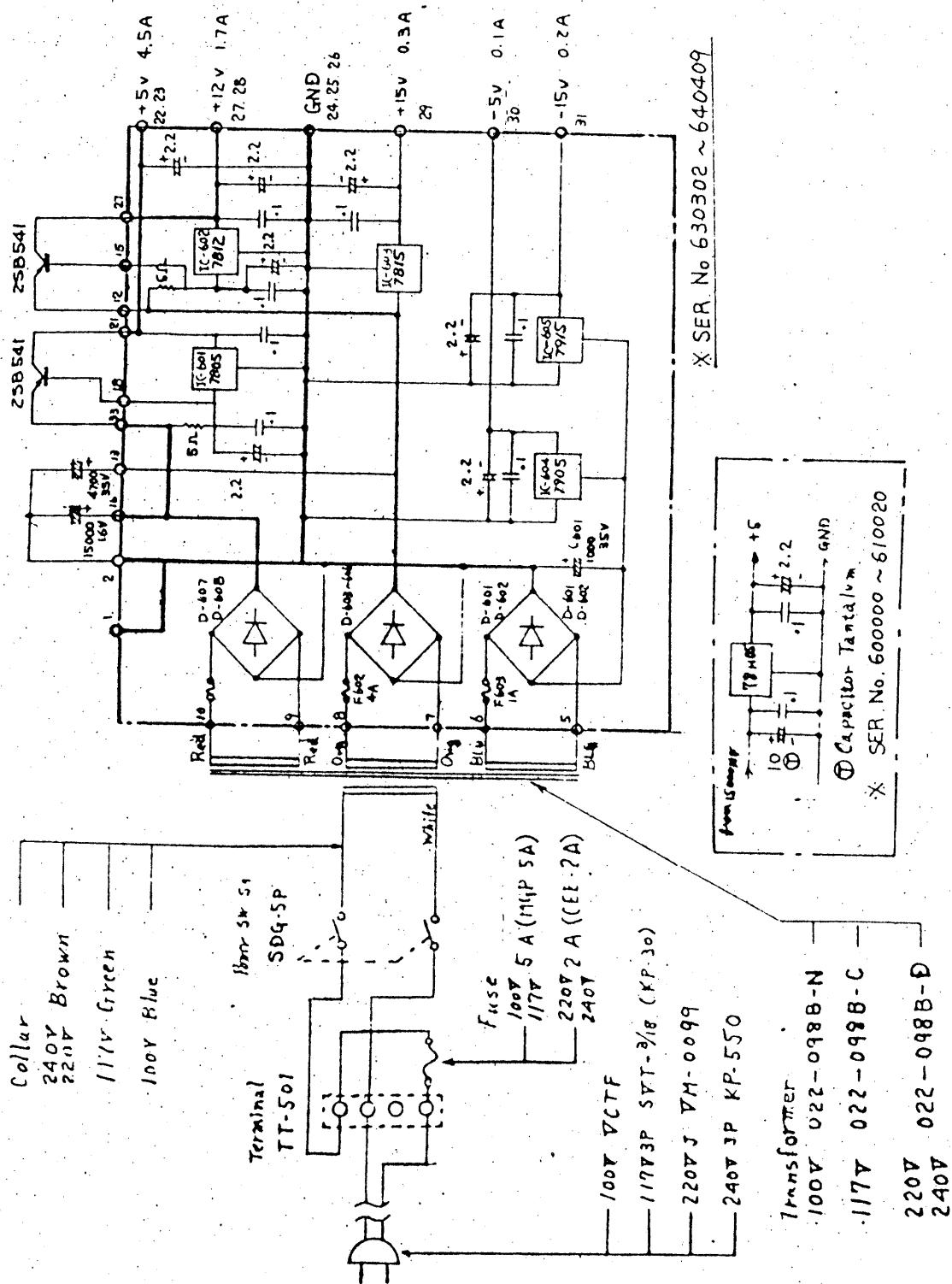
OP-64 & OP-65 Display And Key Board Circuit Diagram

Note

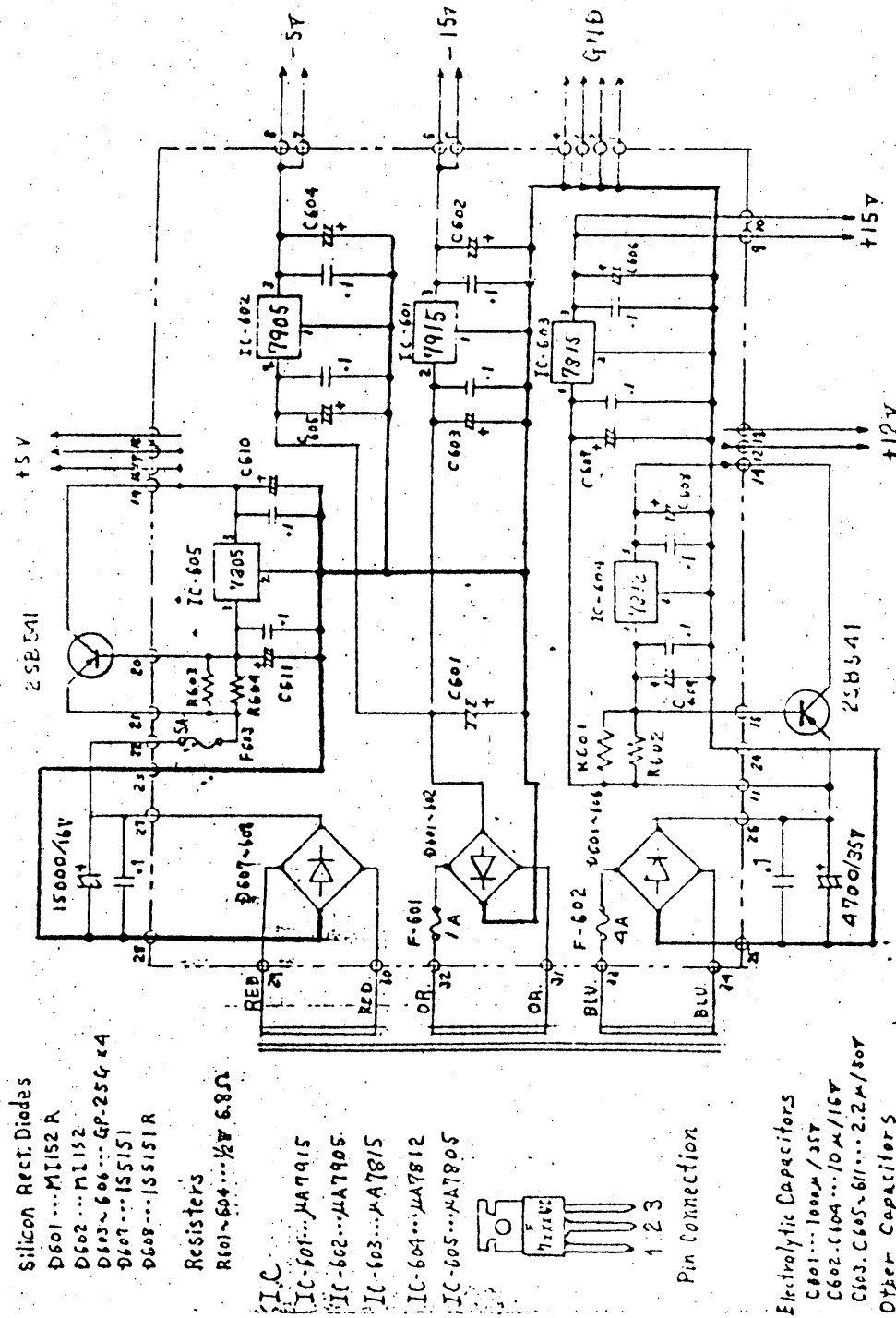
0.1 μ fd capacitors between certain IC power supply input pins and ground are not shown in this diagram.



Power Supply Circuit Diagram PS-32A



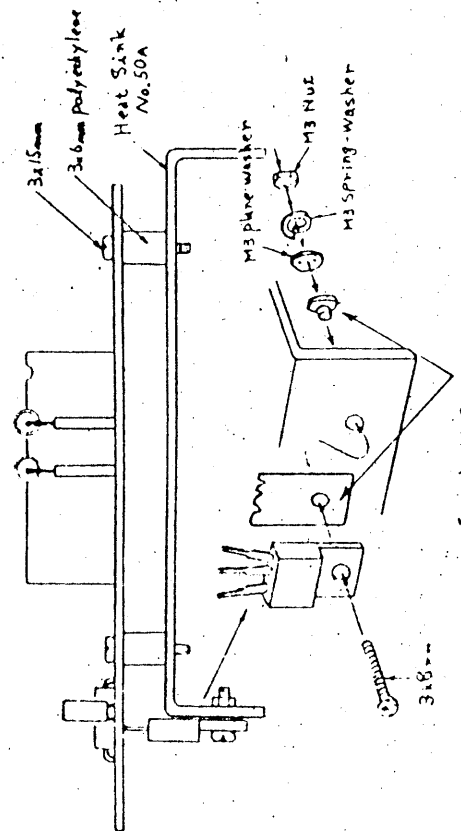
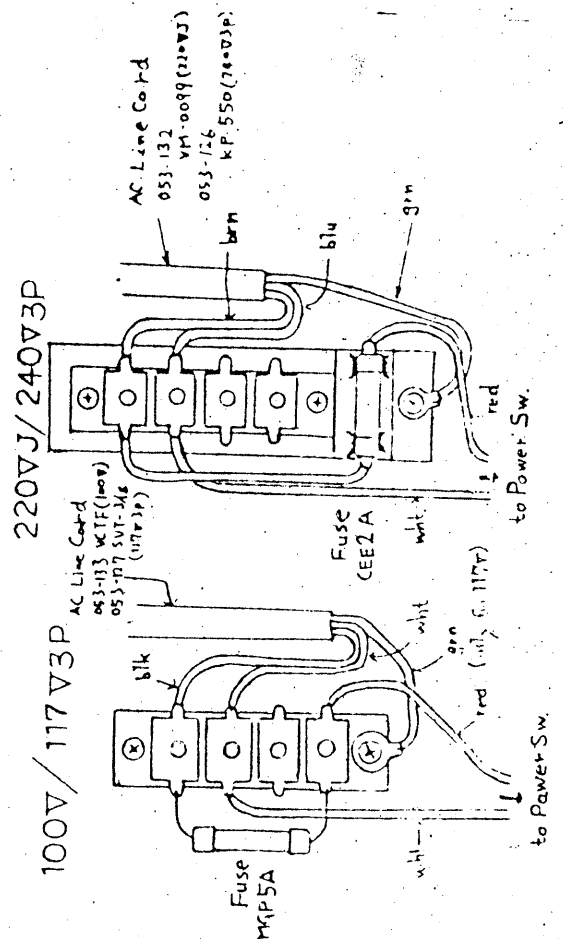
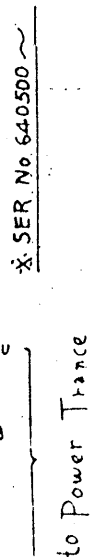
Power Supply Board Assembly PS-32B



2SB541 Arrangement. (Bottom view)

SER. No. 640500 ~

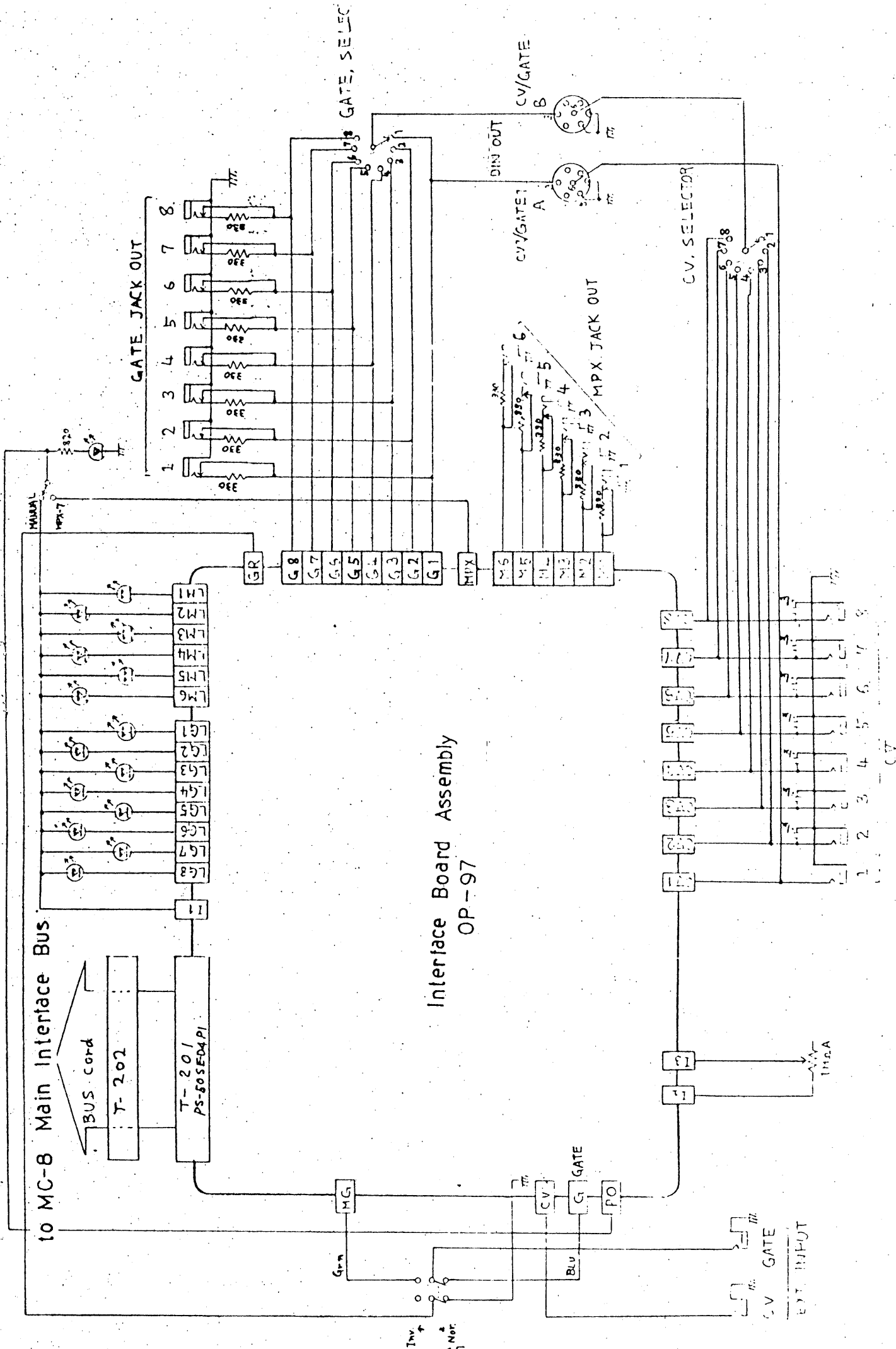
Power Supply Board Assembly PS-32B



UA7805 ~ 7915 Assembly * [Insulating Spacers may be omitted when using UA7805, UA7812, or UA7815.]

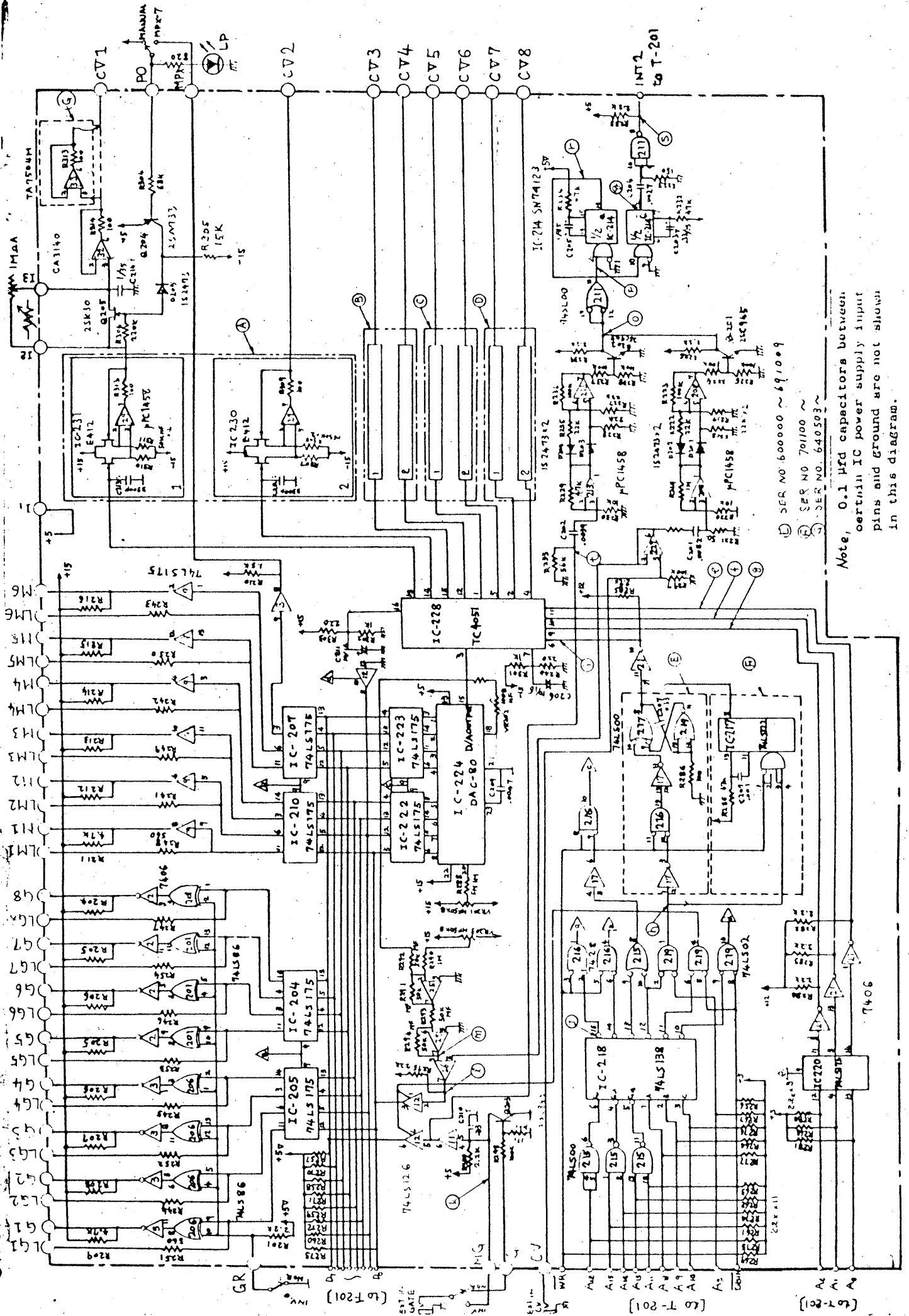
MC-8 Interface Diagram

CV JRTANENRCONTROLLER



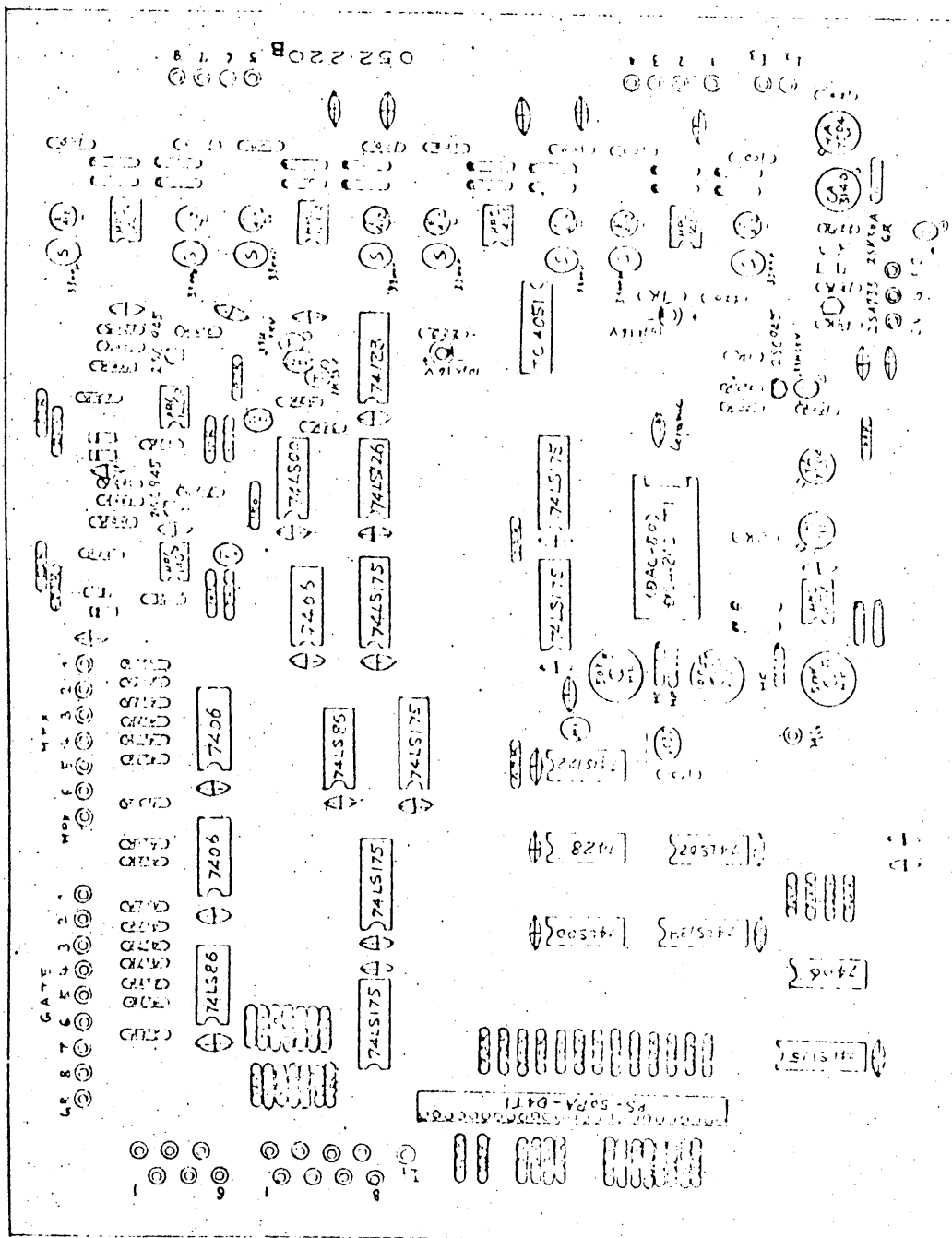
Interface Board Assembly
OP-97













Circuit Diagram OP-97 (149-097)



Note, 0.1 μ fd capacitors between certain IC power supply input pins and ground are not shown in this diagram.

Circuit Board Assembly OP-97B (149-097B)



- | | | | |
|---|---|---|-------------------------|
|  | Resistor 5-25J ($\pm 5\%$) |  | 8-10 Transistor 2SC4+SB |
|  | Metal Film Resistor ($\pm 1\%$) |  | 5 Transistor 2SC1923-R |
|  | Variable Capacitor Mylar ($\pm 10\%$) |  | 5 D ET 2SK30R |
|  | Capacitor Tantalum ($\pm 10\%$) |  | 2 2SC1 200D |
|  | Capacitor Electrolytic | | |
|  | Capacitor Ceramic | | |
|  | Capacitor Ceramic (0.1 μ /25V) | | |
|  | Capacitor Polystyrene | | |

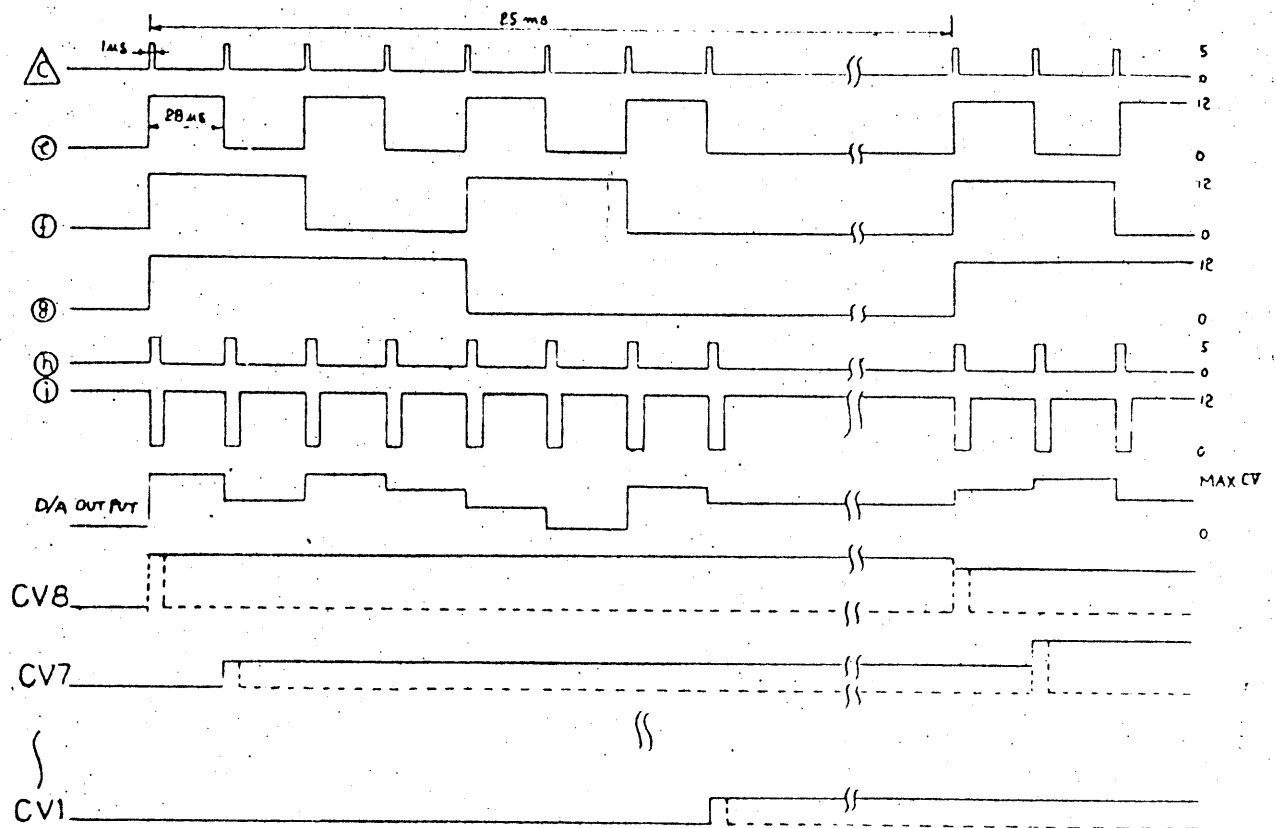


Fig 3 CV Output Timing Diagram.

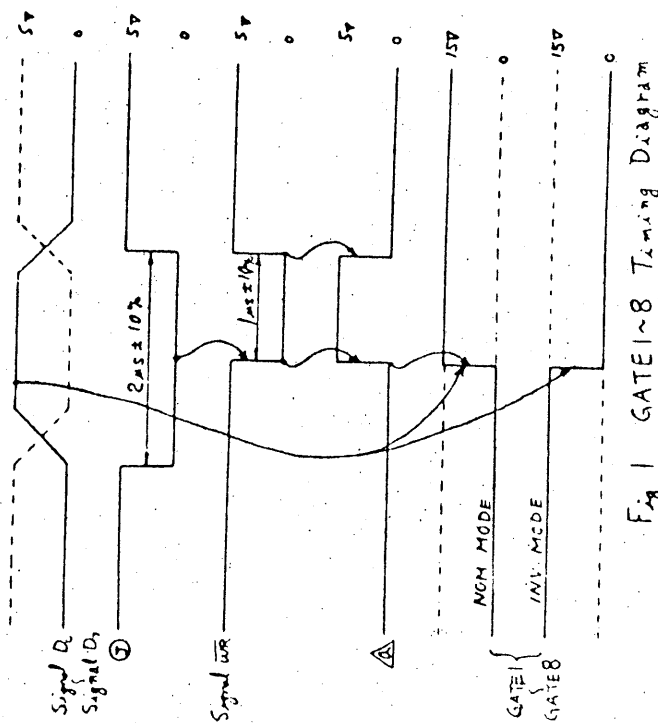


Fig 1 GATE1~8 Timing Diagram

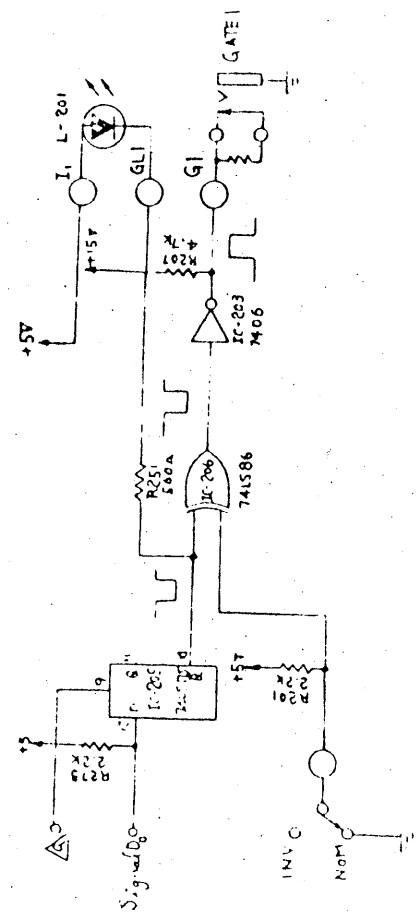
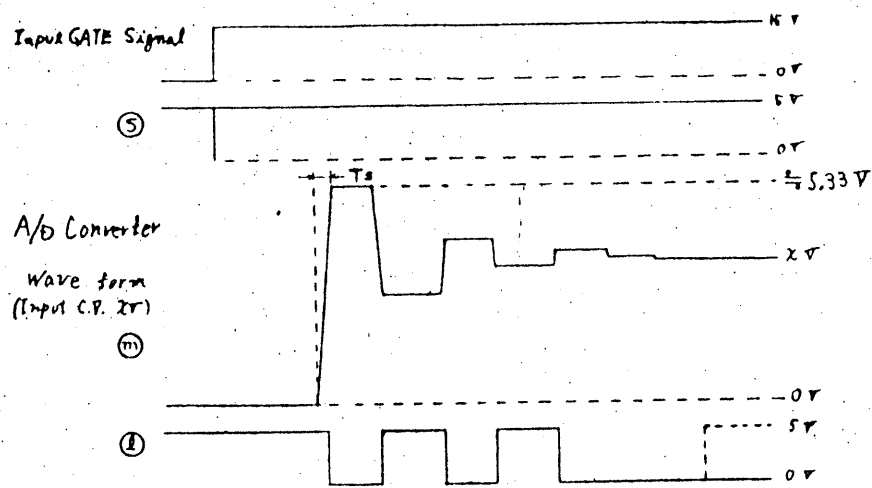


Fig 2 GATE1 Circix Diagram

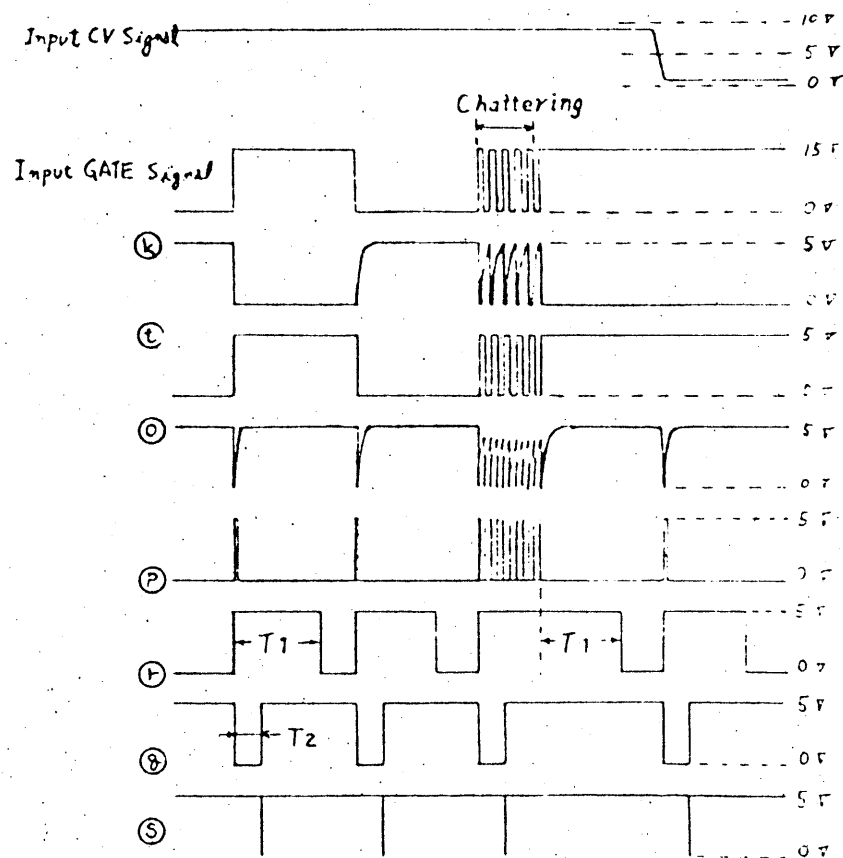


T_s --- Min $0\mu s$ Max $7\mu s$

" T_s " is setup time by slew rate of Op. Amp.

Fig. 5 EXT.CV A/D Converter wave form.

Fig 5 EXT.CV Timing Diagram.



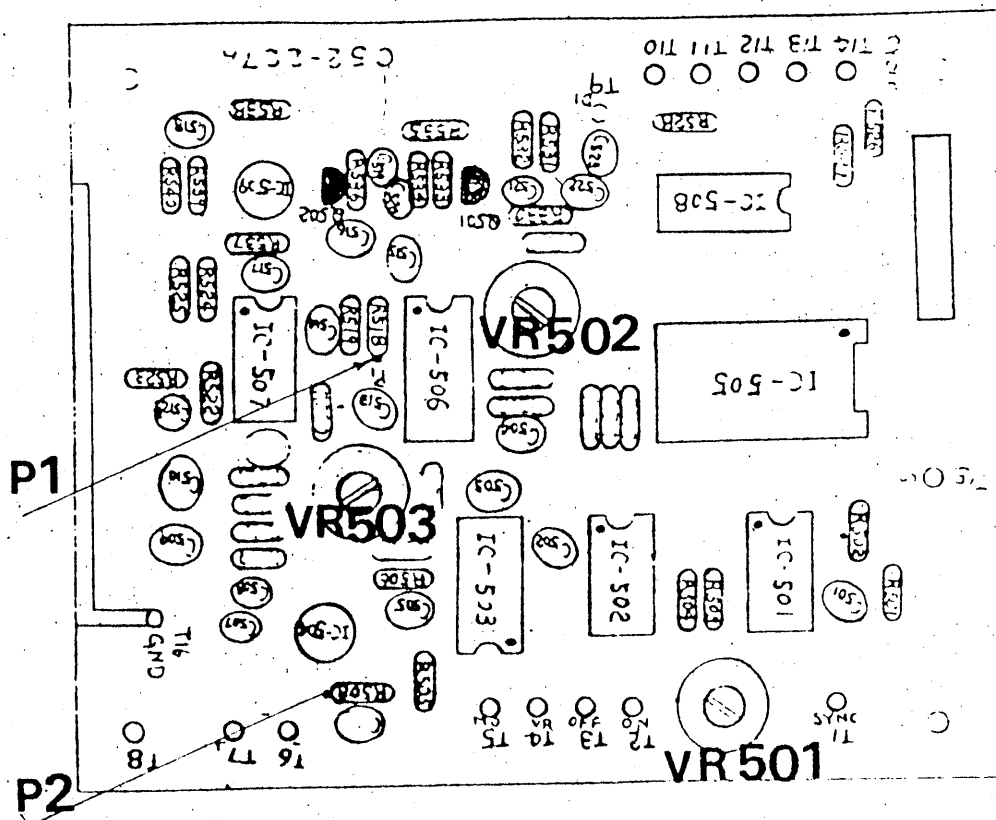
T_1 --- $13.4 ms \pm 15\%$

T_2 --- $4.4 ms \pm 15\%$

Fig 4 EXT. GATE Timing Diagram

Fig. 1

TIMER BOARD



Before adjustment, turn off the power switch once to erase any preceeding data.

Program A
TIME BASE = 20
TEMPO = 60

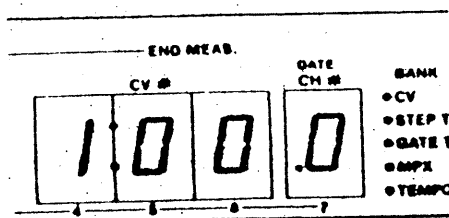
1. Load Program A.
2. Set TEMPO knob at "0".

3. While pushing

TOTAL
TIME

 repeatedly,

adjust VR-501 for:



MEASURE	STEP	CV	STEP TIME
1	1	24	20
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		

C x 5
M 1
M 2

SYNC. FSK ADJUSTMENT

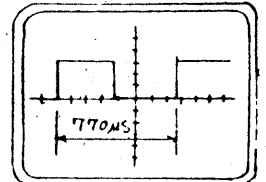
Program B
TIME BASE = 16
TEMPO = 60

Turn off the power switch once to erase the preceeding

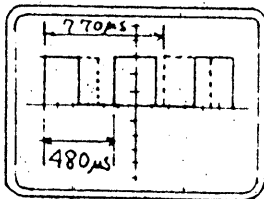
1. Connect oscilloscope lead to P1 (R518). -Fig.1

MEASURE	STEP	C V	STEP TIME
1	1	24	10
	2		
	3		
	4		
	5		
	6		
	7		
	8		
2		C x 10	
11		M 1	
		M 1	

2. Place a capacitor with appropriate value for C513 so that one period of waveform is $770\mu\text{s} \pm 10\mu\text{s}$.



3. Load Program E and push **CYCLE** and **START**.



A composite waveform of two frequencies will appear.

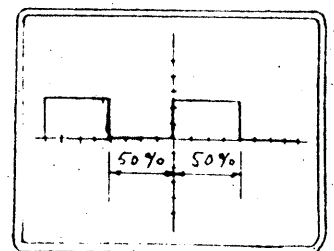
Adjust VR-502 so that the shorter waveform period becomes $480\mu\text{s} \pm 10\mu\text{s}$.

4. Patch the SYNC OUT jack to the SYNC IN jack on the rear panel of the MC-8.

Push **STOP**; shift oscilloscope lead to P2 (Fig.1)

Change TIME BASE to 64, TEMPO to 240.

Adjust VR-503 so that waveform has a duty ratio of 50%.



TAPE RECORDER INTERFACE ADJUSTMENT

Turn off the power switch to erase the
preceeding data.

1. Connect oscilloscope lead to F1 (Fig.2)
- Connect patch cord between DUMP and
LOAD jacks.

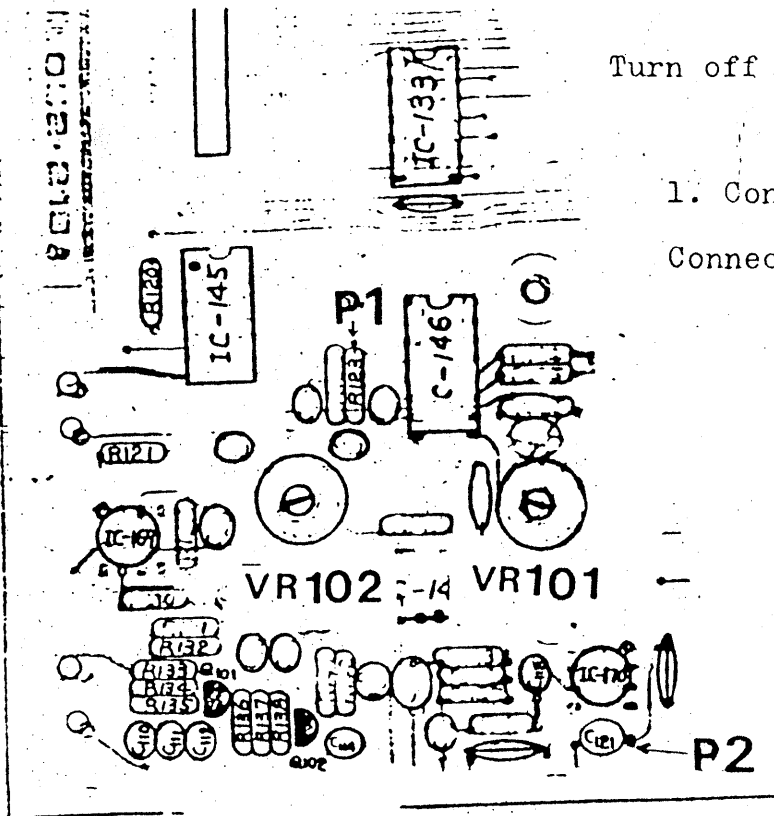


Fig. 2 CPU Board

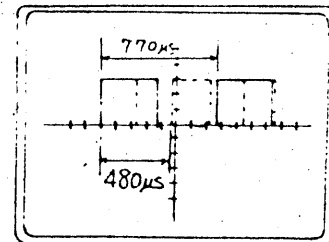
Load Program C
and push DUMP.

MESURE	STEP	CV
1	1	85
	2	1
	3	1
	10	1
2		Cx2
3		M1
4		M1
300		Cx99
		M1
		M3

A composite waveform of two frequencies will appear.
Place a capacitor with appropriate value for C102 so that longer waveform period is 770us+10us.

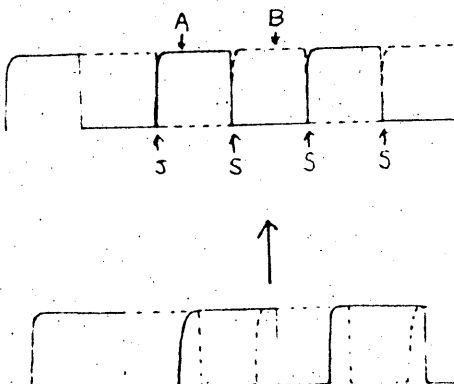
Adjust Vh-101 so that shorter waveform becomes
480uS+10uS.

If Program runs out before adjustment completes,
Push DUMP again.

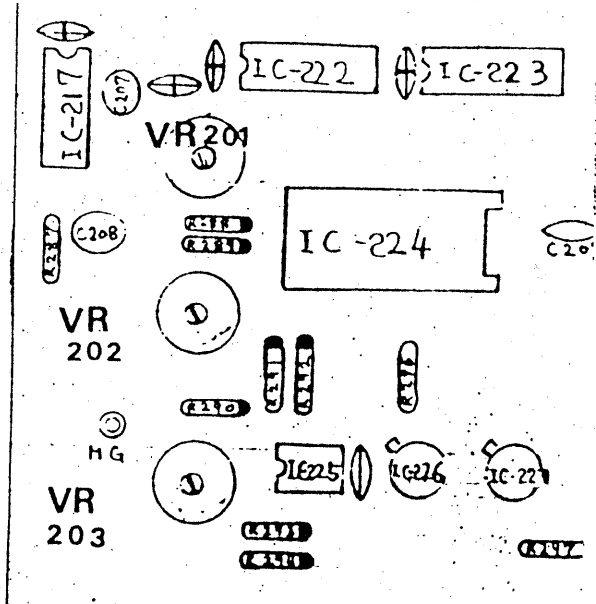


2. Shift oscilloscope lead to P2.

Adjust VK-102 so that leading edge of B/A is superimposed upon the trailing edge of A/B - points S -



INTERFACE ADJUSTMENT



Connect Bus Cord between MC-8 and
Interface.

Connect a digital voltmeter to the CV-1 jack on the front panel of the INTERFACE.

Turn PORTAMENTO fullcounterclockwise.

1. Write "0" into CV-1 memory and adjust VR-201 for 0.00V±1mV.

Write "120" into CV-1 memory and adjust VR-202 for 10.00V±1mV.

Fig. 3

CV	CV out	CV	CV out
0	0 ▽	72	6 ▽
12	1 ▽	84	7 ▽
24	2 ▽	96	8 ▽
36	3 ▽	108	9 ▽
48	4 ▽	120	10 ▽
60	5 ▽		

2. Write "12" to "84" into CV-1 memory in sequence shown at the left and check respective voltages, readjust VR-202 if error is more than $\pm 1mV$.

In practical applications, accuracy of linearity is important only between 0V and about +6V; deviations of voltages above this are not so important.

Program D

TIME BASE = 32

TEMPO = 120

MEASURE	STEP	CV	STEP TIME	GATE TIME
1	1	0	10	5
	2	12		
	3	24		
	4	36		
	5	48		
	6	60		
	7	72		
	8	84		
	9	96		
	10	108		
	11	120		
2				
3				
10				

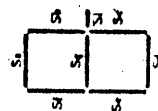
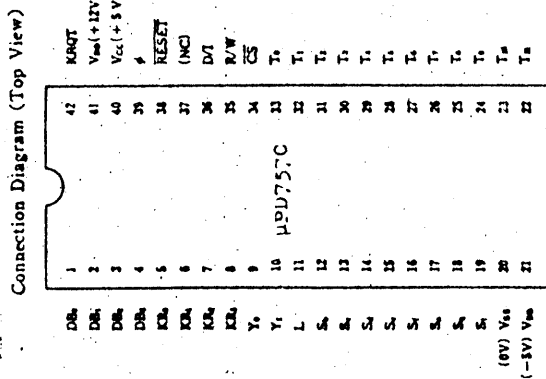
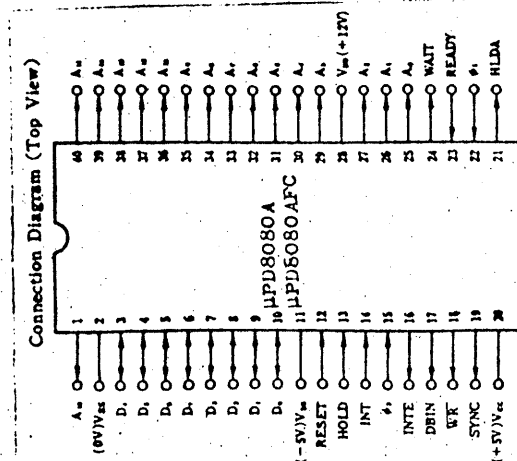
3. Load Program 2 into CV-1 memory.

Connect CV-1 OUT to EXT INPUT CV and
GATE-1 OUT to EXT INPUT GATE.

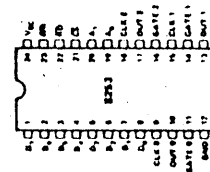
Set up the MC-8 programing so that CV-2 memory will accept data from CV-1.

Push **CYCLE** and **START**,

Adjust VR-203 so that correct numbers shown in Program D are displayed in sequence.



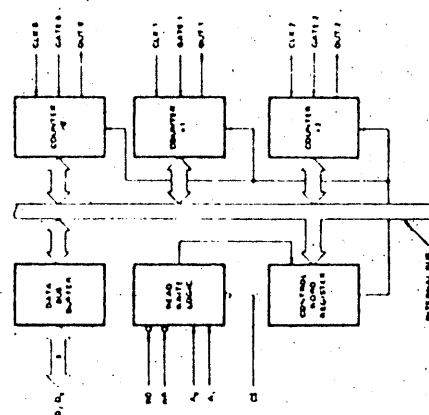
PIN CONFIGURATION



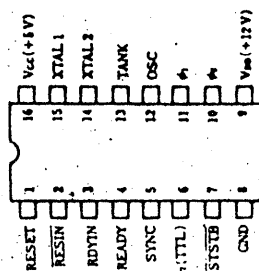
PIN NAMES

Pin	Name	Function
A ₀ -A ₁₅	Address	16-bit address bus
D ₀ -D ₇	Data	8-bit data bus
CS	Chip Select	Active low
R/W	Read/Write	Active low
DBIN	Data Buffer In	Active low
DBOUT	Data Buffer Out	Active low
INT	Interrupt	Active low
INTR	Interrupt	Active low
RESET	Reset	Active low
HOLD	Hold	Active low
HLDA	Hold Acknowledge	Active low
V _{cc}	Supply Voltage	+5V
V _m	Memory Supply Voltage	+12V
V _{ss}	Ground	-5V

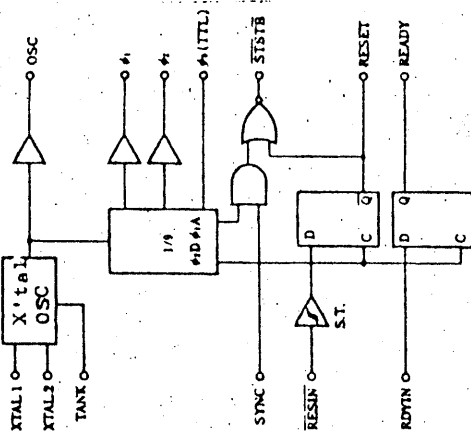
BLOCK DIAGRAM



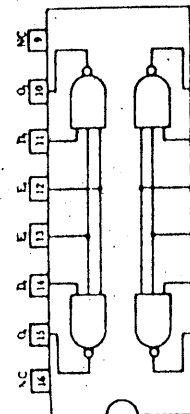
Connection Diagram (Top View)



Block Diagram

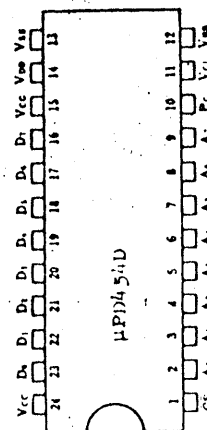


Connection Diagram (Top View)

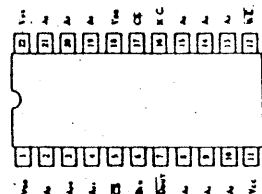


μPB246D

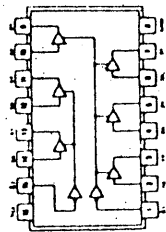
Connection Diagram (Top View)



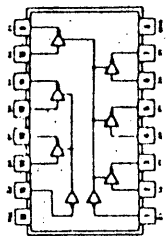
Connection Diagram (Top View)



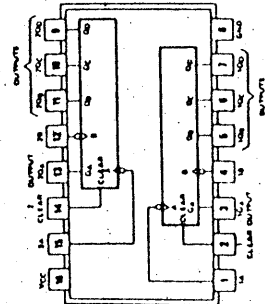
μPD410D



SN74LS367
Noninverted
Bus Buffers

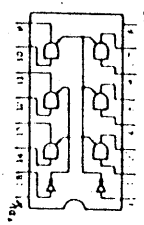
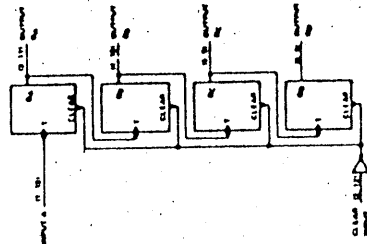


SN74LS368
Inverted
Bus buffers

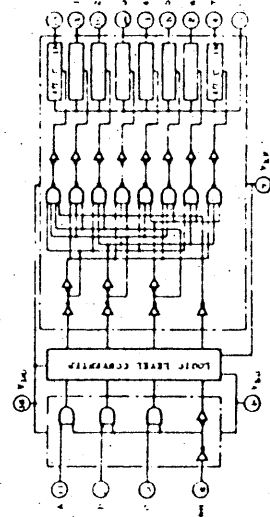


SN74LS93
4-bit Binary Counter

COUNT	Q ₃	Q ₂	Q ₁	Q ₀
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1



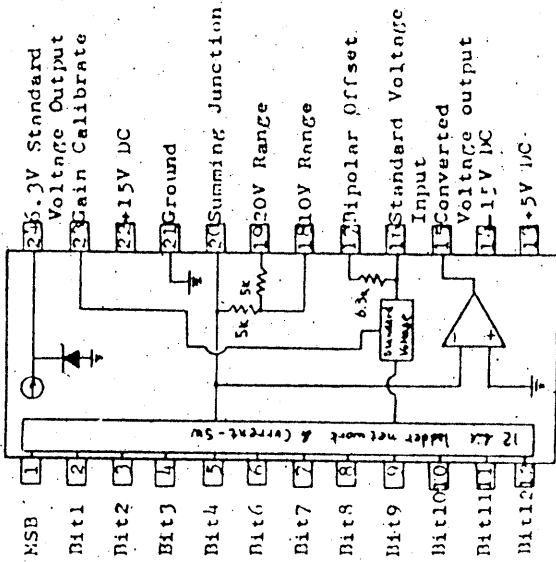
TC5012BP
3-state Noninverted Buffer

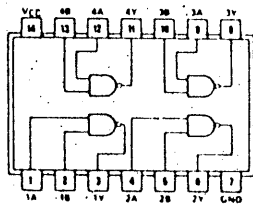


TC4051BP
8-channel Multiplexer

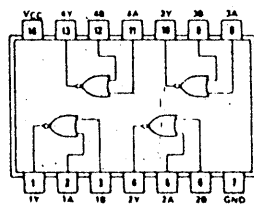
INPUTS	A	B	C	D	Y
0	0	0	0	0	0
1	0	0	0	1	1
2	0	0	1	0	2
3	0	0	1	1	3
4	0	1	0	0	4
5	0	1	0	1	5
6	0	1	1	0	6
7	0	1	1	1	7
8	1	0	0	0	8
9	1	0	0	1	9
10	1	0	1	0	10
11	1	0	1	1	11
12	1	1	0	0	12
13	1	1	0	1	13
14	1	1	1	0	14
15	1	1	1	1	15

DAC-80

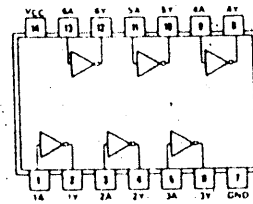




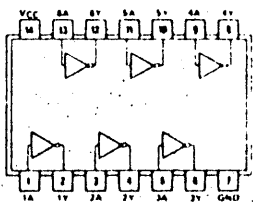
SN74LS00
2-INPUT NAND



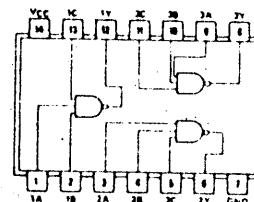
SN74LS02
2-INPUT NOR



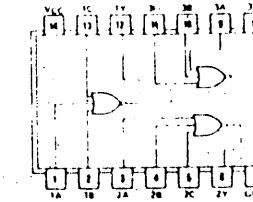
SN74LS04
INVERTERS



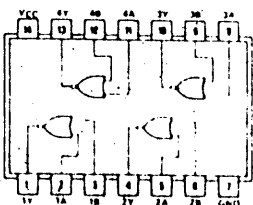
SN7406
Open-collector
INVERTERS



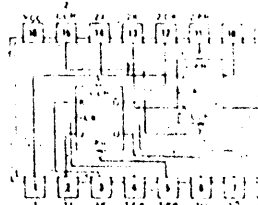
SN74LS10
3-INPUT NAND



SN74LS27
3-INPUT NOR

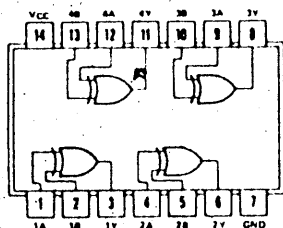


SN7428
2-INPUT NOR
Buffers

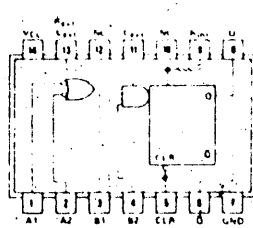


SN74109
J-K positive edge triggered F/F

FUNCTION TABLE						
INPUTS				OUTPUTS		
PRESET	CLEAR	CLOCK	J	K	Q	Q̄
L	H	X	X	X	H	L
H	L	X	X	X	L	H
L	L	X	X	X	H	H
H	H	-	L	L	L	H
H	H	-	H	L	TOGGLE	
H	H	-	L	H	Q ₀	Q ₀
H	H	-	H	H	H	L
H	H	L	X	X	Q ₀	Q ₀

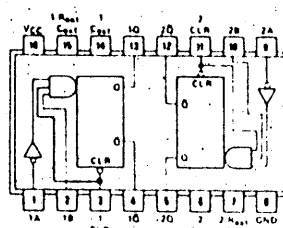


SN74LS86
2-INPUT
Exclusive-OR



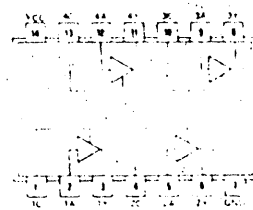
SN74LS122
monostable
Multivibrator

FUNCTION TABLE						
INPUTS				OUTPUTS		
CLEAR	A1	A2	B1	B2	Q	Q̄
L	X	X	X	X	L	H
X	H	H	X	X	L	H
X	X	X	L	X	L	H
X	X	X	X	L	L	H
H	L	X	H	L	L	H
H	X	L	H	L	L	H
H	X	L	L	H	L	H
H	X	L	L	L	L	H
H	H	H	H	H	L	H
H	H	H	H	L	L	H
H	H	H	L	H	L	H
H	H	H	L	L	L	H

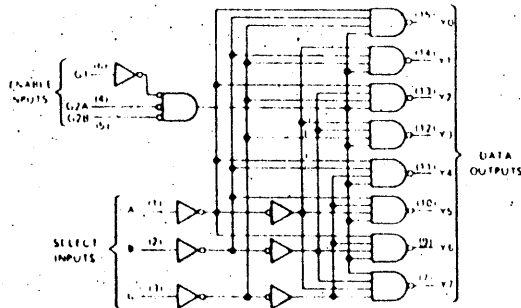
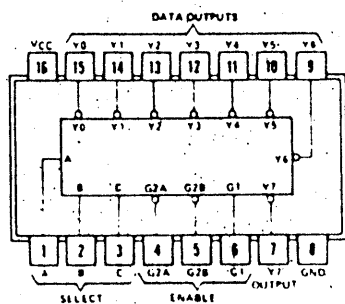


SN74123
Monostable
Multivibrators

FUNCTION TABLE				
INPUTS		OUTPUTS		
CLEAR	A	B	Q	Q̄
L	X	X	L	H
X	H	X	L	H
X	X	L	L	H
H	L	L	L	H
H	H	L	L	H
H	L	H	L	H
H	H	H	L	H



SN74126
Bus-Buffer Gates
with three-state outputs

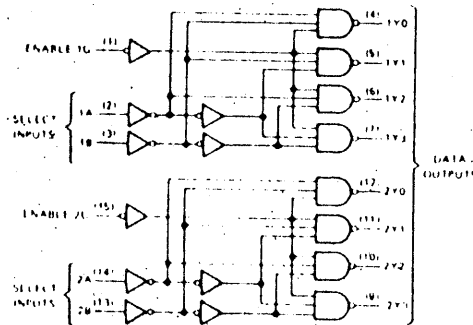
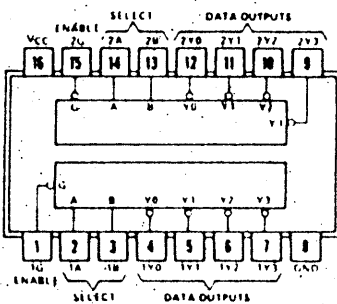


INPUTS					OUTPUTS							
ENABLE		SELECT										
G1	G2*	C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7
X	H	X	X	X	H	H	H	H	H	H	H	H
L	X	X	X	X	H	H	H	H	H	H	H	H
H	L	L	L	L	L	H	H	H	H	H	H	H
H	L	L	L	H	L	H	H	H	H	H	H	H
H	L	L	L	H	L	H	H	H	H	H	H	H
H	L	L	H	L	L	H	H	H	H	L	H	H
H	L	L	H	H	L	L	H	H	H	L	H	H
H	L	H	L	L	L	H	H	H	H	L	L	H
H	L	H	L	H	L	L	H	H	H	L	L	H
H	L	H	H	L	L	L	H	H	H	L	L	H
H	L	H	H	H	L	L	L	H	H	L	L	H

*G2 = G2A + G2B

H = high-level L = low-level X = irrelevant

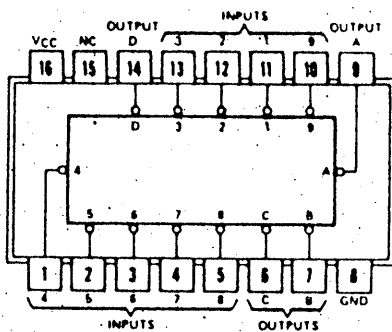
SN74LS138
3-to-8 line Decoder



INPUTS			OUTPUTS			
ENABLE		SELECT				
G		B A	Y0	Y1	Y2	Y3
H		X X	H	H	H	H
L		L L	L	H	H	H
L		L H	H	L	H	H
L		H L	H	H	L	H
L		H H	H	H	H	L

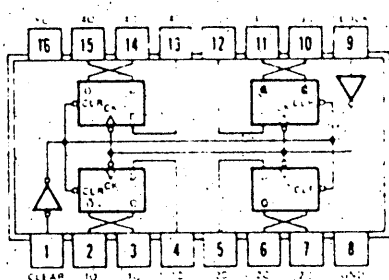
H = high-level L = low-level X = irrelevant

SN74LS130
2-to-4 line Decoders

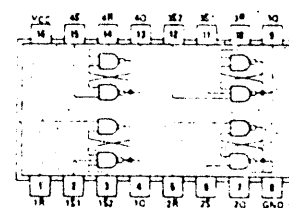


INPUTS										OUTPUTS				
EI	0	1	2	3	4	5	6	7		A2	A1	A0	GS	EO
H	X	X	X	X	X	X	X	X	H	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	H	L
L	X	X	X	X	X	X	X	L	L	L	L	L	L	H
L	X	X	X	X	X	X	L	H	L	L	L	L	L	H
L	X	X	X	X	L	H	H	H	L	H	L	L	L	H
L	X	X	X	L	H	H	H	H	H	L	L	L	L	H
L	X	X	L	H	H	H	H	H	H	L	L	L	L	H
L	X	L	H	H	H	H	H	H	H	H	L	L	L	H
L	L	H	H	H	H	H	H	H	H	H	H	L	L	H

SN74148
8-to-3 line Priority Encoder



INPUTS			OUTPUTS	
CLEAR	CLOCK	D	Q	Q'
L	X	X	L	H
H		H	H	L
H		L	L	H
H	L	X	Q ₀	Q ₀ '



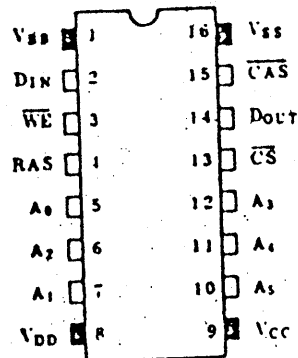
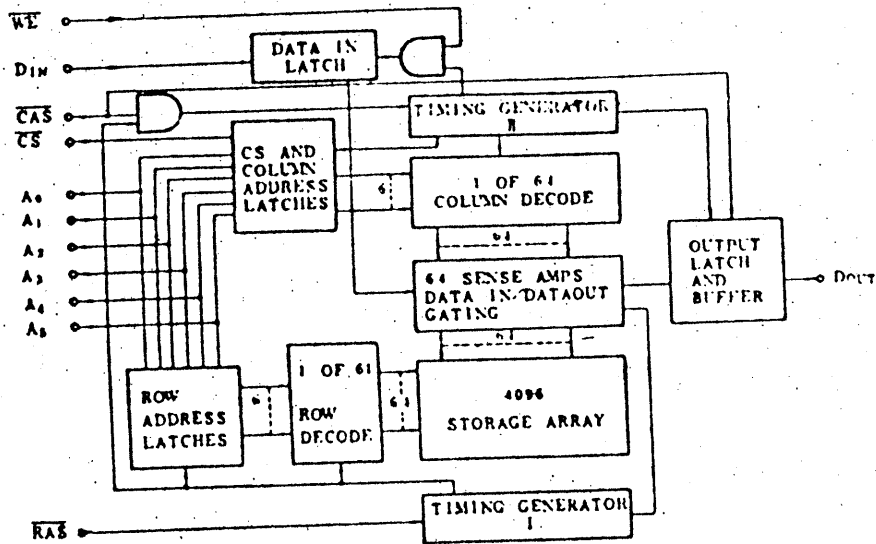
INPUTS		OUTPUT
S	R	Q
H	H	Q ₀
L	H	H
H	L	L
L	L	H*

SN74LS175
D-type F/F

SN74LS270
S-R Latches

TMM415

BLOCK DIAGRAM



(Top View)

A ₀ -A ₅	Address Input
CAS	Column Adr Strobe
CS	Chip Select
DIN	Data Input
Dout	Data Output
RAS	Row Adr Strobe
WE	Write Enable
V _{ss}	Power (-5V)
V _{cc}	Power (+5V)
V _{DD}	Power (-12V)
V _{ss}	Ground

MC-8 MicroComposer and Interface Parts List

Part Number	Part and Description	
178-010	Keyboard assembly	
-011	rear panel assembly	
-012	bottom chassis assembly	
-013	main panel assembly	
-021	sub-chassis assembly, interface	
-030	bus cord	
061-145B	chassis, left	(chassis no. 145)
-146B	" , right	(" " 146)
1147B	sub-chassis, keyboard	(" " 147)
-148C	chassis, bottom	(" " 148)
-149C	" , top	(" " 149)
-163B	sub-chassis, interface	(" " 163)
-164	chassis, interface	(" " 164)
-165B	" , " , left	(" " 165)
-166B	" , " , right	(" " 166)
072-148	main panel	(panel no. 148)
-149C	rear panel	(" " 149)
-150A	acrylic panel	(" " 150)
-161C	panel, interface	(" " 161)
083-009C	side panel, left	(side panel no. 9)
-014B	side panel, right	(" " " 14)
146-032	PS-32 power supply board assembly	
149-063	OP-63 CPU board assembly	
-064	OP-64 display board assembly	
-065	OP-65 LED board assembly	
-066	OP-66 timer board assembly	
-067	OP-67 interface board assembly	
052-221	PS-32 printed circuit board, less parts	
-218C	OP-63	"
-223A	OP-64	"
-225A	OP-65	"

052-227	OP-66	printed circuit board, less parts	
-220	OP-67	"	
-257	No. 257	"	(keyboard)
-325	No. 325	"	(rear panel)

Power Transformer:

022-098B-N	No. 98B-N	100V
-098B-C	No. 98B-C	117V
-098B-D	No. 98B-D	220V, 240V

AC Line Cord:

053-104	VCTF	100V
-027	SVT-3/18 (KP-30)	117V 3P
-021	SVT-2/18	117V 2P
-108	VM-0000	220VJ
-026	KP-550	240V 3P

Fuse:

008-030	SGA	5A	secondary
-080	SGA	4A	
-026	SGA	1A	
-046	HGP	5A	100V, 117V primary
-070	CDE	2A	220V, 240V primary

012-029	fuse holder	S-K 5054	
-018	fuse holder	XF-1133	220V, 240V

047-025	cord bushing	EA-5	100V, 220V, 240V
-022	"	SR-5	117V

068-020 bushing no. 20

042-036 terminal block TT-501, D-04P

048-048	heat sink no. 48		power supply board
-050A	"	no. 50A	rear panel

047-005 nylon clip BP-4R

111-020 base no. 20

012-001 transistor socket TS-005

065-121 " cover 42-104P-00

-034 cover no. 34 (for interface)

016-008	button no. 8	gray	for push switch
-024	knob TK-175		for TEMPO VR
-025	" TK-11221-1		for interface
009-009	jack LJ-106-1-1		
064-144	holder no. 144		for bottom chassis
-145	" no. 145		for main panel
-208	" no. H-002		for interface

Switch:

001-219	SCR 41037	for MARK key
-220	SCR 41000	for control key
-221	SCR 41000	for number key
-170	SUE 12A-748A	push sw. no. 70
-222	SUE 12A-92	" " " 142
-180	SDG-5p	power switch
-153	ESR-E118R 20A	rotary switch
-065	ESL-2411	lever switch
-223	SA-2011	toggle switch

Potentiometer:

028-453	VH-10A 15S 5KB	shaft = 25mm
-443	" " 1MA	shaft = 20mm
029-101	PN B04C 3A(H) 101	100dB trimmer
-104	" " 102	100dB trimmer
-106	" " 103	100dB trimmer
-108	" " 503	500dB trimmer

Connector:

010-169	S-1660A-STA	60P	
-170	SW-1660A-STA	60P	
-171	P-1660BA-CA	60P	for bus cord
012-048	CS-260-1-1	6P	pin connector
010-172	PS-50SE-D4P1	50P	JAE
-173	PS-20SE-D4P1	20P	JAE
-176	No. 609-5003	50P	Ansley
-174	PS-50PA-D4t1	50P	JAE
175	PS-20PT-D4t1	20P	JAE

IC Sockets:

012-034	DICA-40C-T1	40P	JAN
-035	DICA-24C-T1	24P	JAN

Labels

076-333	No. 333	for key tops
-334	No. 334	for interface

IC:

020-111	MPD 8030A	NEC
-112	MPD 454D	NEC
-118	8253	INTEL
-113	MPD 410D	NEC
-114	MPB 8224	NEC
-115	MPB 2460	NEC
-116	MPD 757C	NEC
-117	MPA 53C	NEC
-120	74LS00	TI
-122	74LS02	TI
-124	74LS04	TI
-125	7406	TI
-126	74LS10	TI
-128	74LS27	TI
-129	7428	TI
-132	74LS86	TI
-133	74109	TI
-134	74LS122	TI
-135	74123	TI
-137	74LS126	TI
-138	74SL138	TI
-139	74LS139	TI
-140	74148	TI
-141	74LS175	TI
-142	74279	TI
-143	74LS367	TI
-144	74LS368	TI
-068	MC14046CP	Motorola
-054	LM311	NS

IC (continued)

020-147	LM565	NS
-062	µPC 1458C	NEC
-010	TA 7504M	NEC
-074	TC 5012	Toshiba
-090	TC 4051	Toshiba
-105	CA 3140T	RCA
-106	µA 7805 UC	FC
-107	7812 UC	FC
-108	7815 UC	FC
-109	7905 UC	FC
-110	7915 UC	FC
-148	DAC-80-CBI-V	BN

Transistor:

017-068	2SA562
-012	2SA733
-122	2SB541
-013	2SC945
-121	2SC1923
-016	2SK30A GU
-036	B412

Diode:

018-014	1S2473	
-032	1S5151	
-033	1S5151R	
-019	Hi Fi Special GP-25B	
-062	MI152	zenner
-063	MI152R	zenner
019-019	DL-747	LED
-009	LR-0601R R-ohm	LED

049-010	crystal	HC-18/u	18MHz
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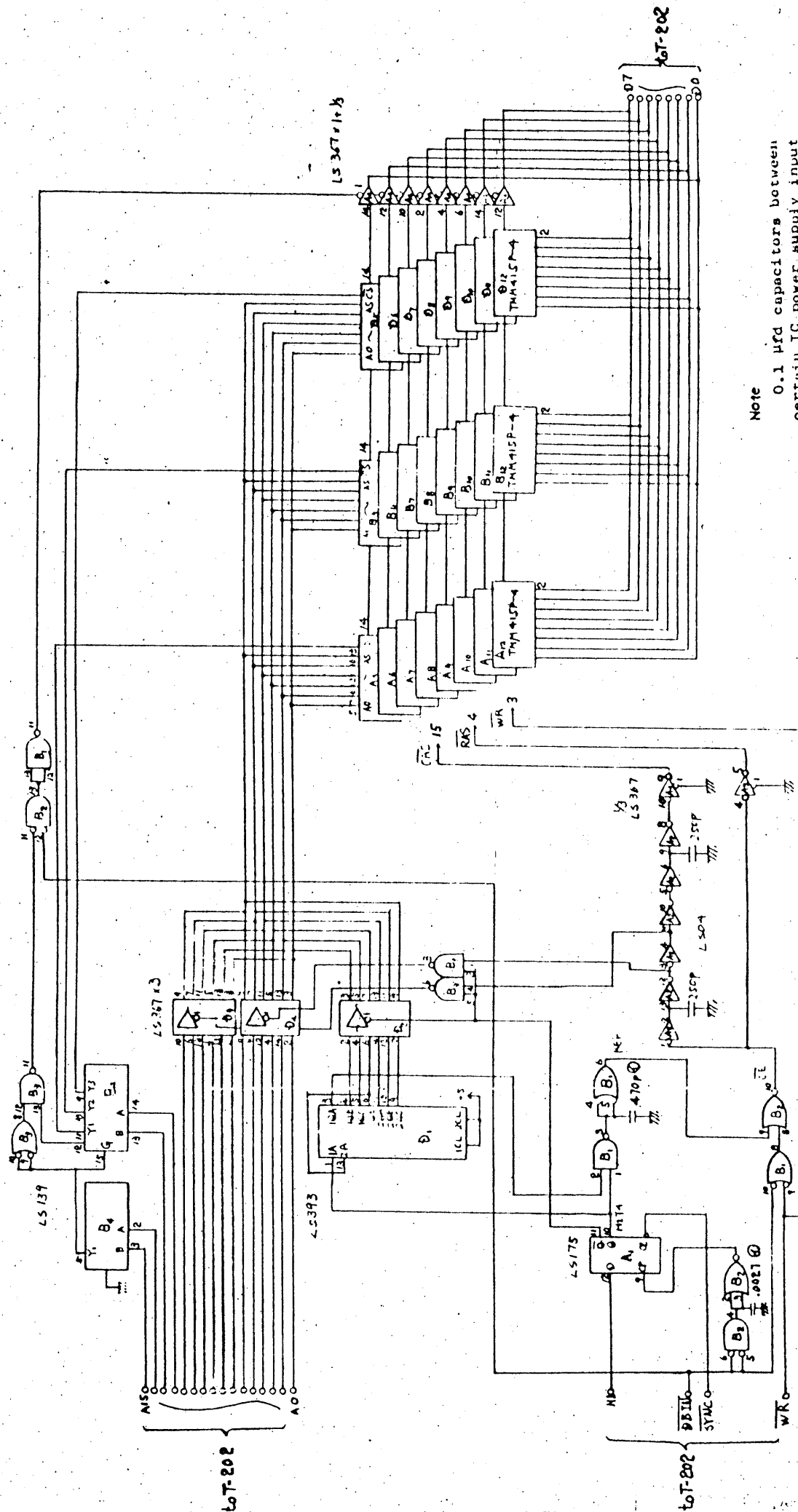
Capacitor:

032-149	ECEN 35R 472EU	35V	4700µ	electrolytic
-233	16LASN15000	16V	15,000µ	"

Capacitor (continued)

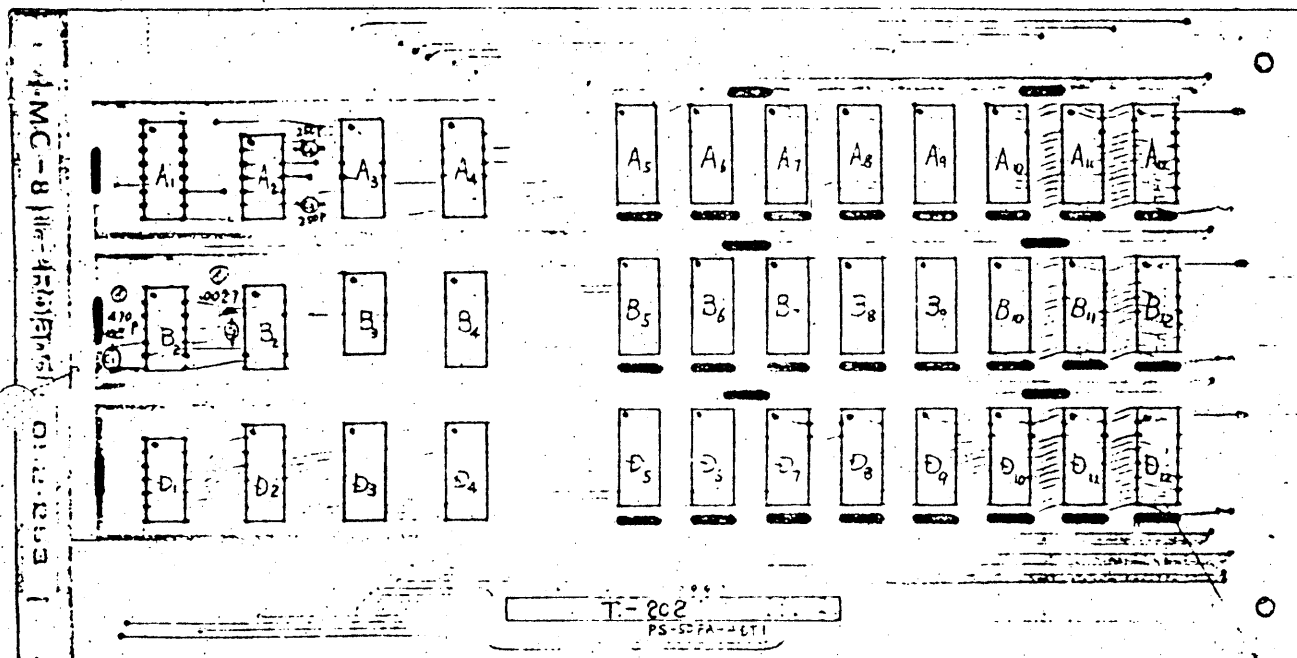
032-234	35LASN4700	35V	4700μ	electrolytic
-033	ECFA, 16V10	16V	10μ	"
-037	" , 16V100	16V	100μ	"
-045	" , 25V3R3	25V	3.3μ	"
-072	" , 50V2R2	50V	2.2μ	"
-122	ECFB, 35V1000	35V	1000μ	"

OM-8 Circuit Diagram



Note
0.1 μfd capacitors between
certain IC power supply input
pins and ground are not shown
in this diagram.

MC-814-27477-1 01-2-263



- 100

MC-8 Option memory (OM-8) Parts List

Part Number	Part and Description
149-077	OP-77 option memory board assembly
052-263	OP-77 printed circuit board, less parts
020-149	TIM-415P-4 Toshiba
(020-151	MPD 414D NEC SER No.701008~)
020-120	SN74LS00 TI
020-122	SN74LS02 TI
020-124	SN74LS04 TI
020-139	SN74LS139 TI
020-141	SN74LS175 TI
020-143	SN74LS367 TI
020-146	SN74LS393 TI
010-174	Connector PS-50PT-D4T1 50P JAE

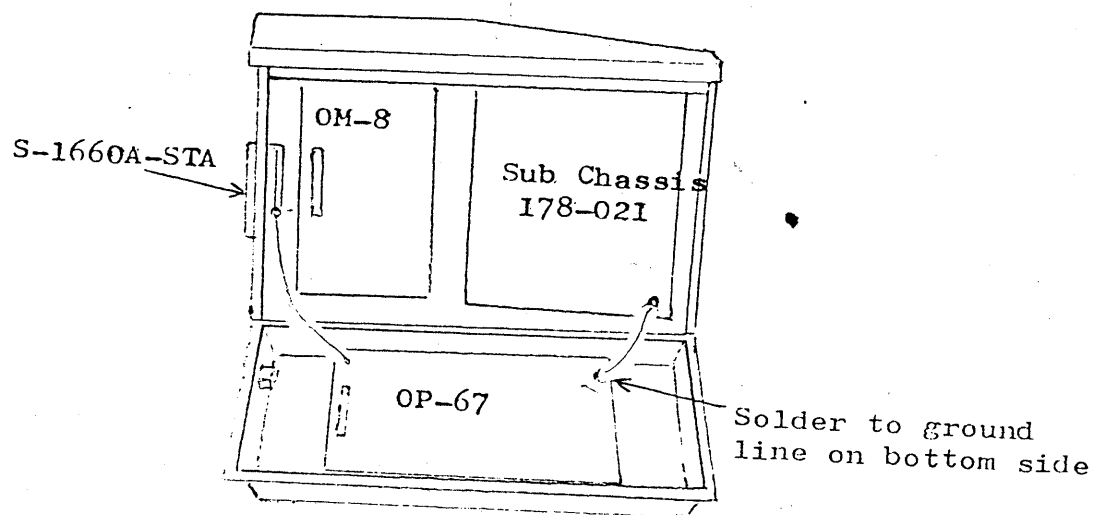


Fig. 4 Interface Wiring